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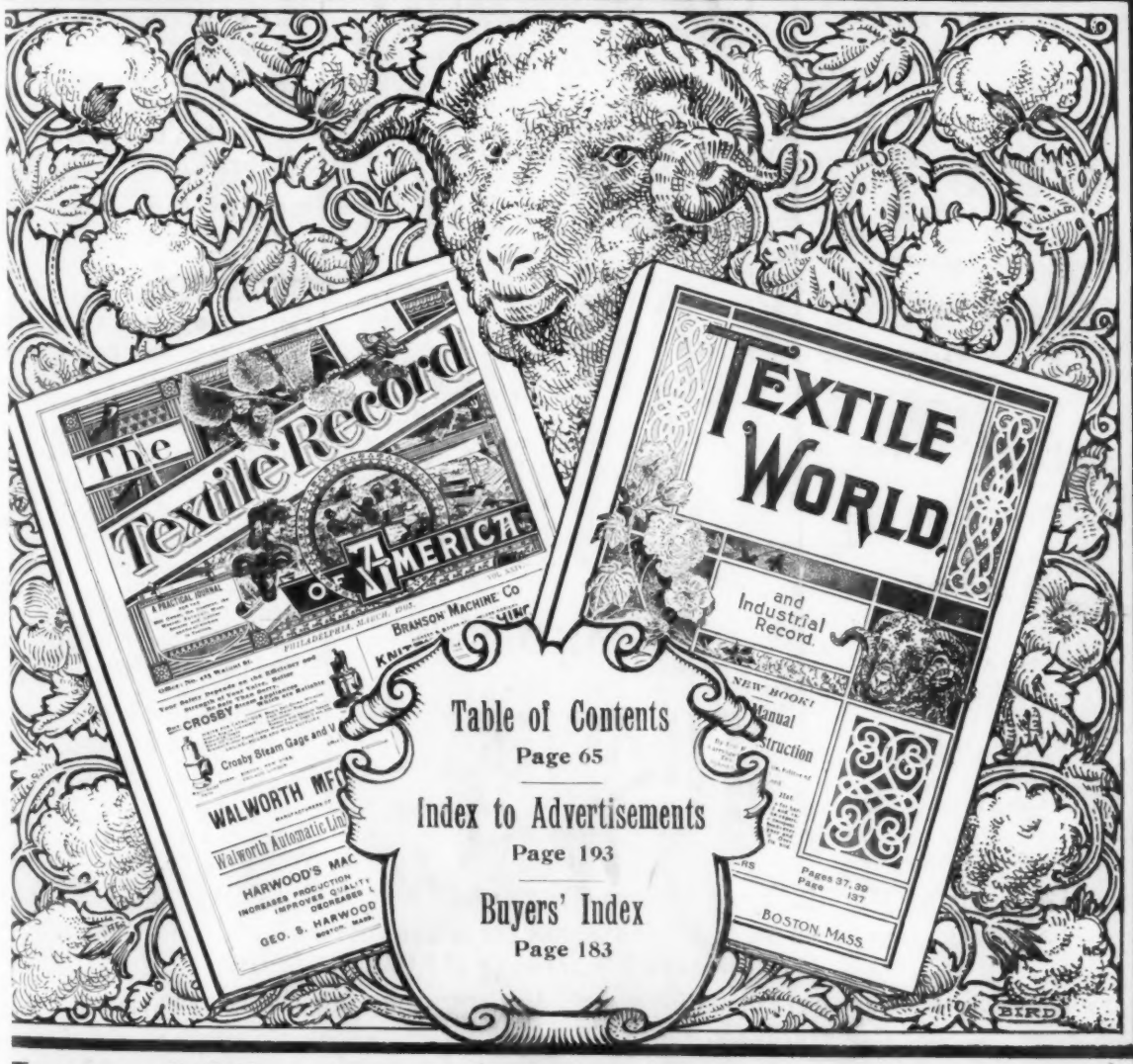
AUGUST, 1907.

$2.00 per year.
$3.00 with Directory.

TEXTILE WORLD RECORD



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LORD & NAGLE COMPANY · Boston & Philadelphia

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The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST.

PROVIDENCE, R. I.

BUILDERS OF
ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING

AND

FINISHING

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

Estimates, Drawings and full particulars of complete plants furnished on application.

Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.

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COTTON

PAPER (LINEN, COTTON OR MANILLA)

FELT PAPER

COMBINATION (COTTON AND HUSK)

COMBINATION (COTTON AND EXCELSIOR)
PATENTED

HUSK

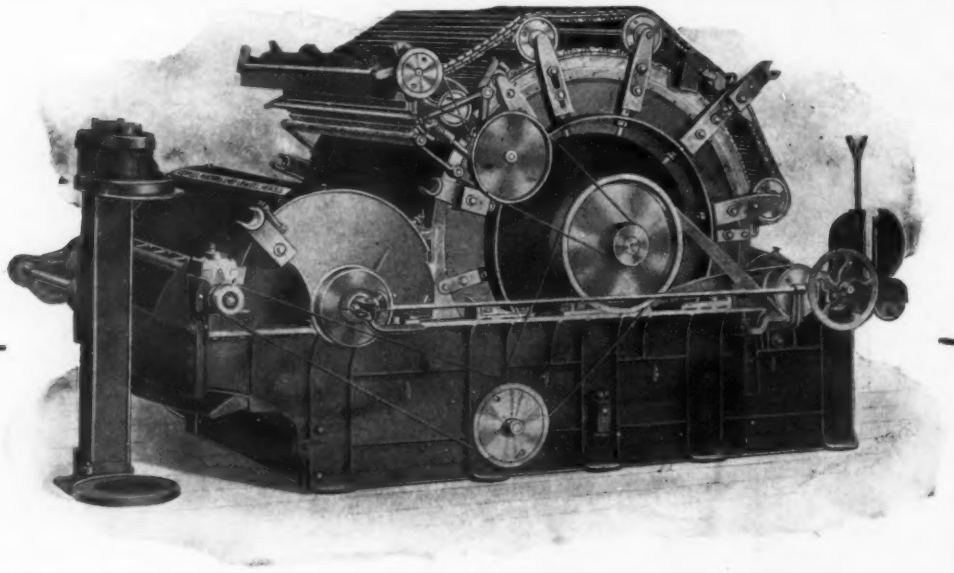
FIBRE

BRASS CHILLED IRON RUBBER

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

BLEACHING, DYEING, DRYING AND FINISHING MACHINERY FOR SILK, COTTON AND WORSTED FABRICS.



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

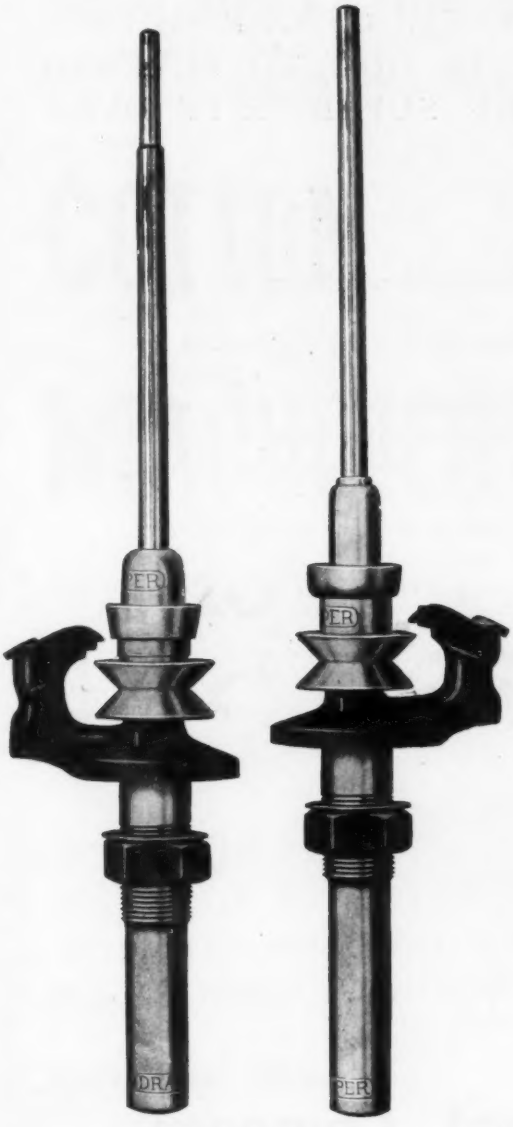
Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.



Two New
Large Size
Spinning Spindles.

We make

Draper,
Whitin,
McMullan

and other
types of

Spindles;

also

Northrop Looms,

Twisters,
Warpers,
Spoolers,
Reels,

Banding Machines,

etc., etc.

Draper Company,
HOPEDALE,
MASS.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

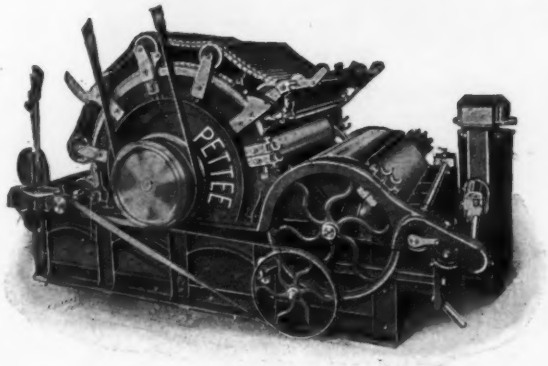
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

Shops—

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Newton Upper Falls, Mass.

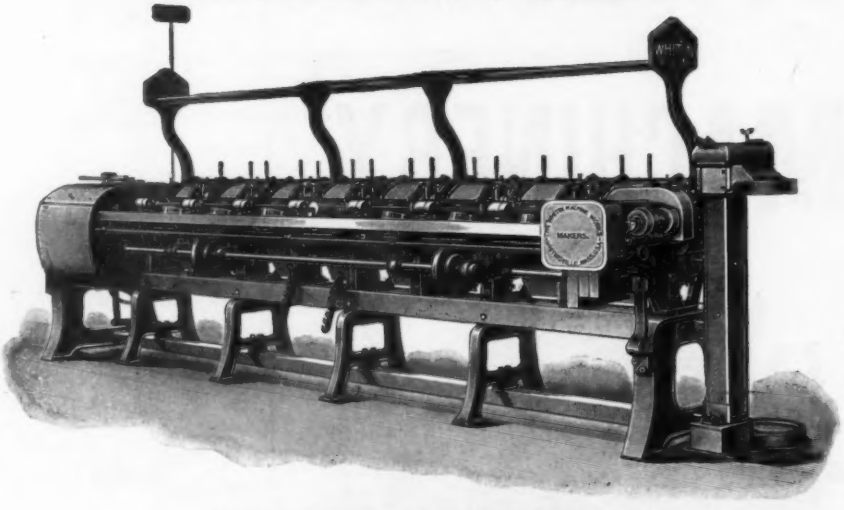
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, CA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

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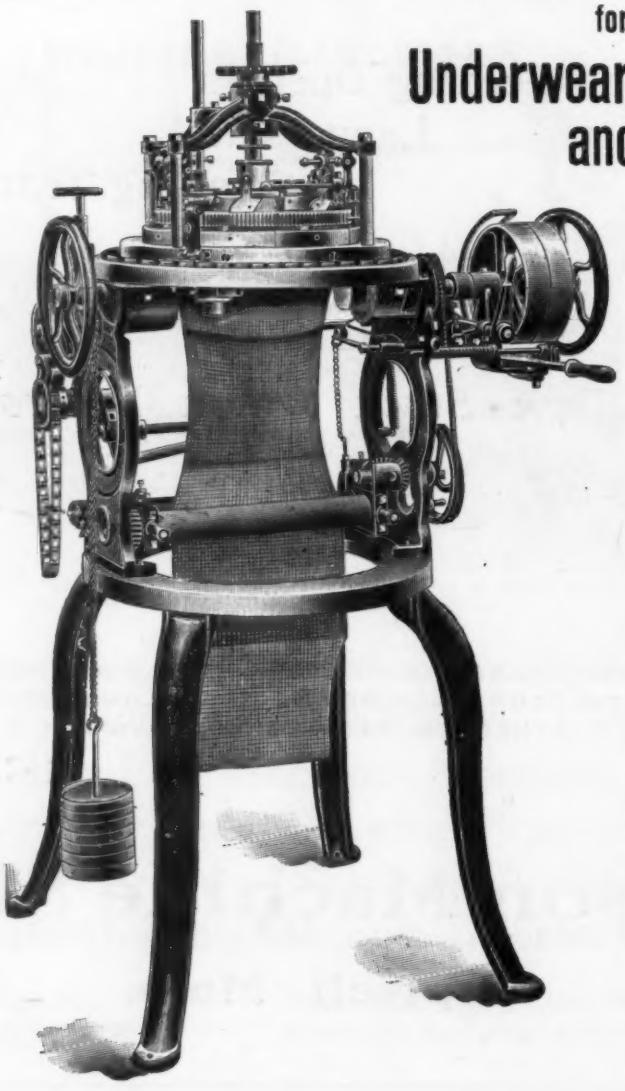
Full Particulars, Samples and Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery



Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

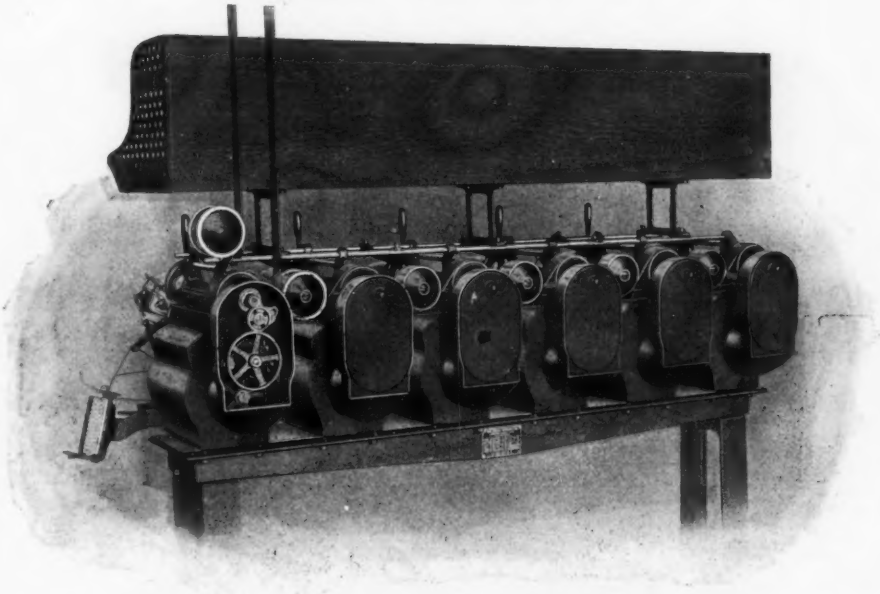
A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.

The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

Knitters ask for the Nutaper Cone



Our recent "fixed-gain" device has added greatly to the efficiency of the No. 50 machine, simplifying its operation and insuring the production of cones having unvarying and correct spacing for delivery to knitting machines.

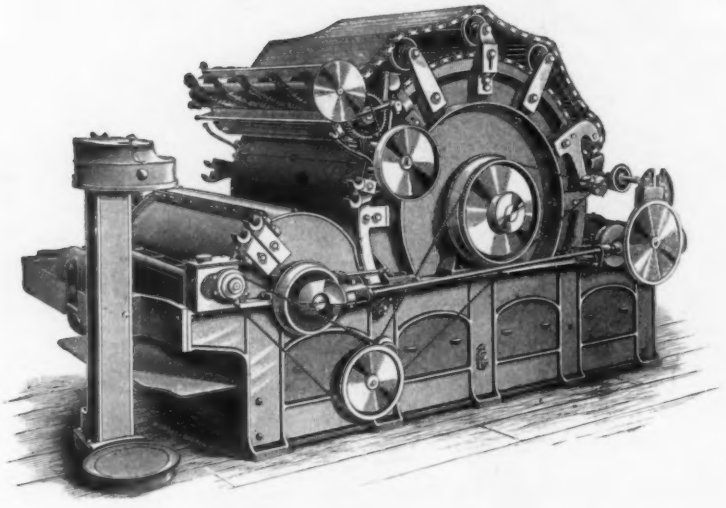
Universal Winding Company
BOSTON

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

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Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
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Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

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Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

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Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SON'S,
Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'.

Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

Jacob K. Altemus is

Able to supply the best

Cop Winding Machinery

Or Hosiery Winders and more in particular

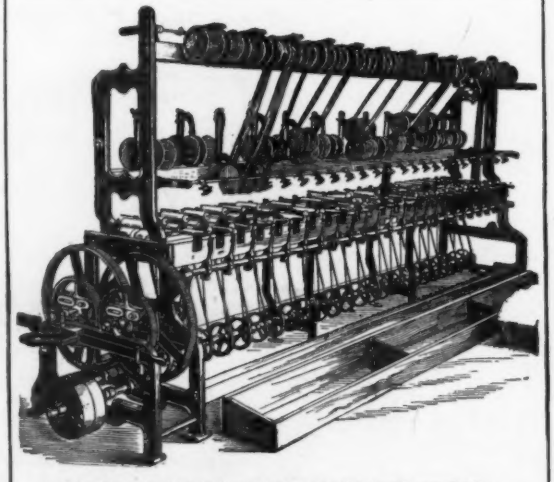
Bobbin Winders,

Keep in mind that I

Always produce machines that are right

Letting nothing go out

That is not satisfactory before delivery.



The Greatest Bobbin Winder for Skeins Ever Built.

Every

Manufacturer should investigate warping and beaming machinery, warp splitting as well,

Upright Spoolers, Quillers, Warpers, Twisters, etc.

Send for full information and prices.

Textile Machinery

2824 N. 4th St., Philadelphia, Pa,

Shuttles for all Textile purposes and Sundry Special Loom devices

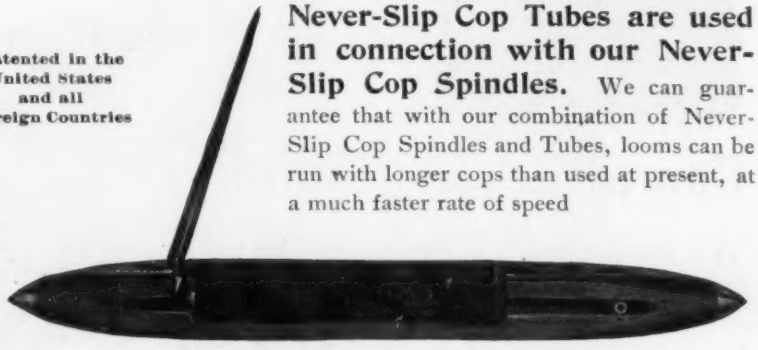
Never=Slip Cop Spindles and Tubes

Never-Slip Cop Tube

Patent applied for

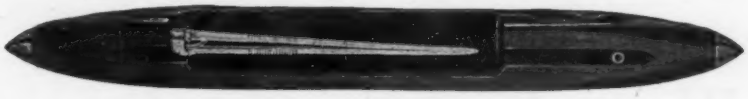
Patented in the United States and all Foreign Countries

Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending



Shuttle with Spindle Lowered.

U. S. Patents: 778851, Jan. 3, 1905; 79611, May 23, 1905; other patents pending

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American Textile Specialty Machinery Co.

363-373 Rider Avenue, New York City

NEAR MOTT AVENUE SUBWAY STATION

Electric and Automatic

Warp Stop Motion for Silk, Wool and Cotton

Simplicity! *Perfection!*

TURBINE WATER WHEELS

HUNT-McCORMICK

Cylinder or Balance Gate Casing

Least Water,
Greatest Power,
Uniform Speed

Complete Equipments

We make Special Designs to meet TEXTILE MILL conditions.

FLUMES, REGULATORS,
SHAFTING, PULLEYS, GEARS,
CLUTCHES, HANGERS, ETC.
UNDER-WRITER FIRE PUMPS.

Wet Finishing Machinery

Fulling Mills——Washers
Dyeing and Bleaching Machines
FOR WOVEN AND KNIT GOODS

Dye Tubs—Soap Tanks—Centrifugal Pumps

RODNEY HUNT MACHINE CO.

Branch Office: 70 Kilby St., Boston. Works: Orange, Mass.

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

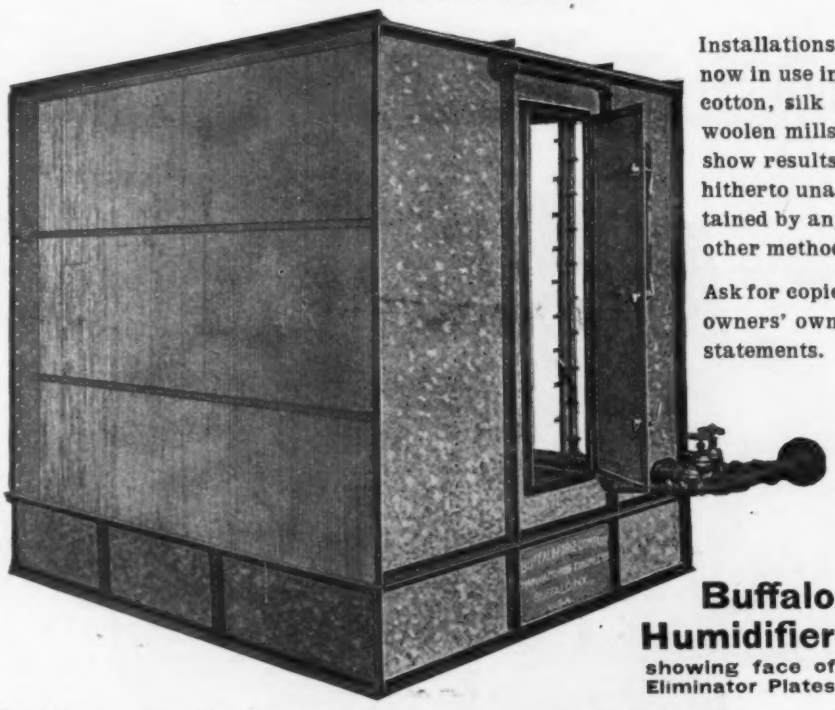
Cloth Washers. *Bulletin 51*

The Hunter CLOTH WASHER

Various Types and Sizes Fully Described in Bulletin 51. Ask for it.

BUFFALO
HUMIDIFING AND COOLING SYSTEM

For all Textile Mills



Installations now in use in cotton, silk and woolen mills show results hitherto unattained by any other methods.

Ask for copies of owners' own statements.

Buffalo Humidifier
showing face of Eliminator Plates

Features: Humidifies and cools the air before, *not after*, entering the room.

No dependence on uncertain and insufficient air leakage in and out of mills for cooling effect.

Humidified and cooled air delivered to work rooms under slight pressure, in order to avoid drafts. Inward leakage of hot air in summer and of cold dry air in winter prevented—an essential feature for uniform humidity and temperature conditions.

The one system cools the spinning room to within 5° of ontside temperature in summer, insures uniformly heated and regulated temperature in winter, maintains and controls humidity of all parts of building at any degree desired, both winter and summer.

Cooling of rooms without opening windows in summer eliminates window drafts—disastrous to fine yarns.

Automatic control. Simple. Nothing to get out of order.

Send for complete illustrated catalog

Buffalo Forge Company
Buffalo, N.Y.

We can interest you.

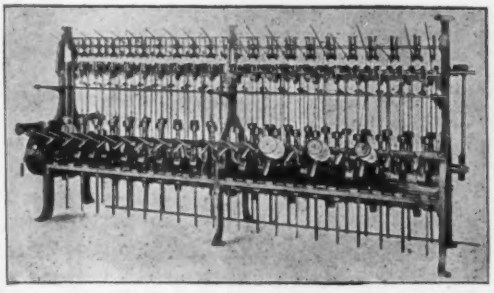
The Canadian Buffalo Forge Co., Limited, Montreal, Canada.

OSWALD LEVER CO.

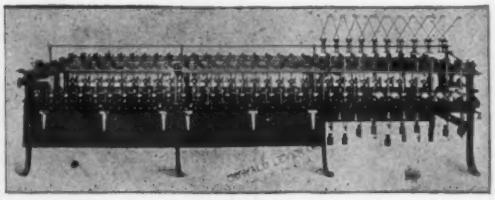
(Formerly LEVER & GRUNDY.)

MANUFACTURERS OF TEXTILE MACHINERY AND SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

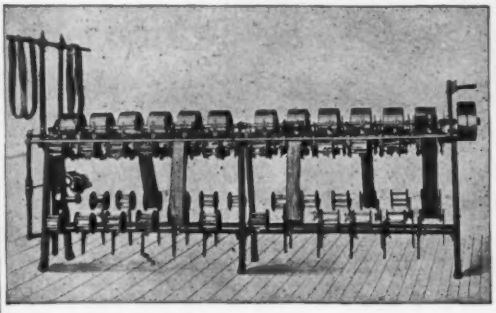
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mills, Beaming Machines, etc.



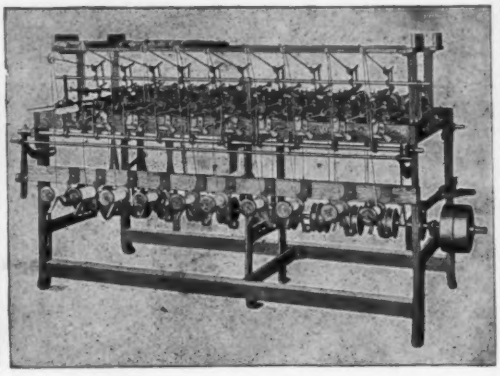
Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton bagging and carpets.



Silk Winder to wind on Quills, Paper Tubes or Butts. The finest of cotton or silk.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

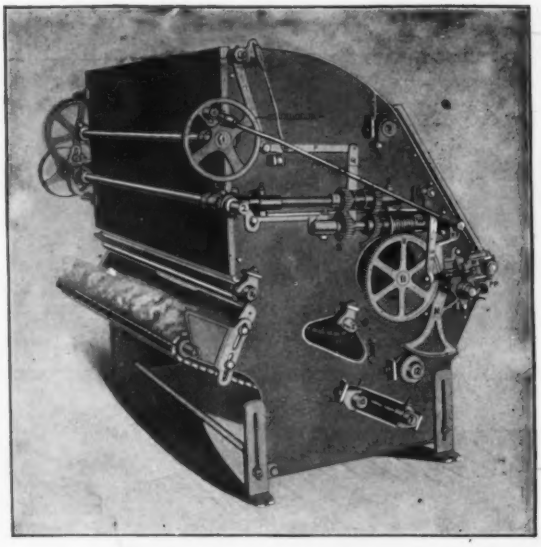


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machines for Silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA., U. S. A.

THE FISHER PATENT CARD FEED



Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

It's the Comb

The Comb Opens Out the Cotton

This enables us to place the specially shaped bars closer together. This means saving cotton, yet getting better cleaning. When you save cotton you save the cost of labor, power etc., expended upon it.

The Picker Room is the place to get the dirt out—not the Carding room—this is what the Schaellibaum Patent Grid does.

That's Why

The Schaellibaum Patent Grid

The Grid with a Comb.

Does better work than any other and helps your profits. There are other reasons which are set forth in our booklet, "More Yarn and Better." Write for it.

Write us in either English, French, German, Spanish or Italian.

The Rob. Schaellibaum Co., 288 Dyer Street

Providence, R. I.

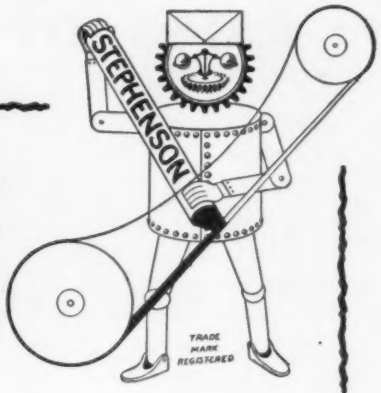
Manchester, England Mulhausen, Germany Bombay, India

PRACTICAL FIRE PROTECTION

If you want your mill buildings properly protected against the fire hazard, thereby obtaining the lowest insurance rates, you must have a supply of water which is instantly available under high pressure and absolutely independent of the successful or immediate operation of pumps or other machinery. The old method of storing such a supply was by wood tanks, generally built on top of buildings. As these tanks are short lived they soon become, themselves, a menace to the building instead of a protector. The sudden bursting of such a tank has often done as much damage as a fire. The up-to-date method of storing water is by means of a steel tank on a steel tower. We make a specialty of the design, manufacture and erection of these tanks of any desired capacity, in any part of the country, to meet any local conditions. Our tanks are recommended by the Factory Mutual Insurance Companies and endorsed by all of our past customers. We have built about seven hundred towers and tanks in all parts of the country, about 50 of which have been erected for Textile Mills. Every one of these is giving satisfaction. Write for booklet No. 7 which gives a list of all our customers with whom we invite you to correspond. The cut shows a tank which we built for the Belton Cotton Mills, at Belton, S. C. The large tank is kept full at all times for fire protection; the small one supplies water for use in the buildings.

Chicago Bridge and Iron Works

105th and Troop Sts. Chicago, Ill.



BUT this Trade Mark protects you against Frauds, Fakes *and* Fakirs

"The strength of a business as expressed by its advertising is the honor that is back of it and the good faith that speaks in every announcement. Of this honor and faith the TRADE MARK is the outward visible sign and expression, the declaration that in this sign the consumer (user) is to trust for reliable goods and 'The Square Deal.' "—*Fame.*

You can not get the GENUINE STEPHENSON Dressing unless you get the COG WHEEL FACE on each pound stick

Why not write us for Free Sample and let its merit prove itself to you
Red Label for Leather
Green Label for rubber or canvas
No **One** kind is good for **All** belts
You know that.

Stephenson Mfg. Co.
E. A. KELLOGG, Vice-Prest.
Albany, N. Y.

Insurance Against
Loss of Profits

Is there a fly-wheel in your mill?

Suppose it should burst and demolish the building and delicate machinery?

Machinery cannot be replaced quickly. In fact, it usually takes months to replace. Where it is of a special type, or designed for a special purpose, the delay is of course much greater.

Meanwhile what is happening to your business?

Your plant is idle; no goods can be made. Just think what an enormous loss you will suffer if the output of your mill is even as low as $150 per day.

Why not protect yourself by insurance?

Maryland Casualty Company is now covering this loss by special endorsement attached to its Fly-Wheel Insurance policy. The indemnity payable under this indorsement is not deducted from the face value of the policy, but is a separate insurance which the Company pays in addition to the face value of the policy. This is really the greater loss from fly-wheel explosion. Protect yourself in time.

Write us for full particulars, giving amount of insurance desired, number and diameter of the fly-wheels and pulleys you want covered. We will quote rates by return mail. Ask for form 237–G descriptive of this insurance.

Maryland Casualty Company
Baltimore, Maryland

The Maryland continues to sell, at fair rates the Standard form of liability policy, which is as good as the best sold by any other company.

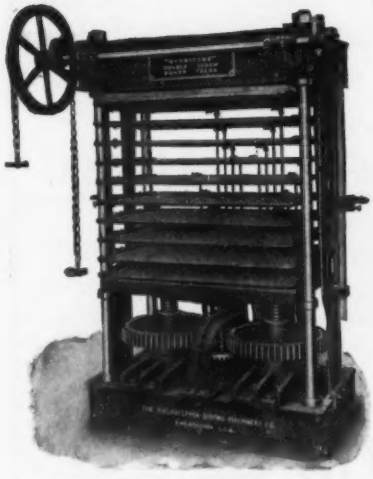
The Company also writes Burglary, Sprinkler Leakage, Teams, Elevator, Personal Accident, Steam Boiler, Water Damage, Physicians' Defense, Plate Glass, Disability, Automobile, Health, Fly-Wheel, and all other classes of casualty insurance.

Assets over
$3,691,447.50

MARYLAND CASUALTY COMPANY
MERITS COMPLETE CONFIDENCE

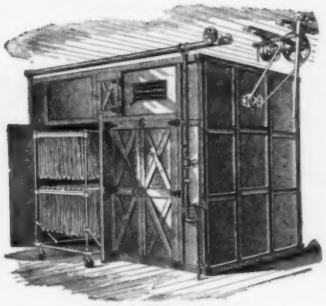
Surplus to Policyholders
$1,722,046.77

"HURRICANE" DRYERS AND FANS



Power Screw, Hydraulic and Lever **Presses**

For Wool, Cotton Stock, Yarn, Stockings, Underwear, Etc.



Truck Yarn Dryer.

BELT DRIVEN AND MOTOR DRIVEN

"Hurricane" Fan, Style No. 2. Write for Catalogues.

COMPLETE EQUIPMENTS FOR DYEING, SCOURING, BLEACHING, CARBONIZING, OXIDIZING, CHROMING, Etc.

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It was just a common jack straw placed between the intermeshing steel wire coils, which are the product of a

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and it looked easy to break. When these two husky young fellows tried it, however, they found their utmost endeavors at twisting and pulling to be absolutely vain. When the regulation raw hide, or steel pin is used, the joint is much stronger than any other part of the belt, and is so compact that it passes over the smallest pulley without slipping, pounding or strain. Cost? Why, you can lace a 5" belt in 3 minutes at a cost for material of one cent. Better send for a catalog.

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HARWOOD'S MACHINERY

Increases Production, Improves Quality, Decreases Labor Cost.

THE MODERN BRAMWELL FEED FOR WOOL WASHERS AND WOOL DRYERS

The scouring and drying of stock is to-day recognized as a very important part of the manufacture of textiles, especially in worsted mills. Our feeds are recognized as the standard for properly feeding stock in the grease or wet stock with absolutely no injury to the staple, with evenness and in sufficient quantity, and in the best possible condition for economical scouring. There have been other feeds offered for this class of work, but after clogging up and giving all kinds of trouble, most of them are to-day in the scrap-heap, having been replaced with our feeders.

GEORGE S. HARWOOD & SON,

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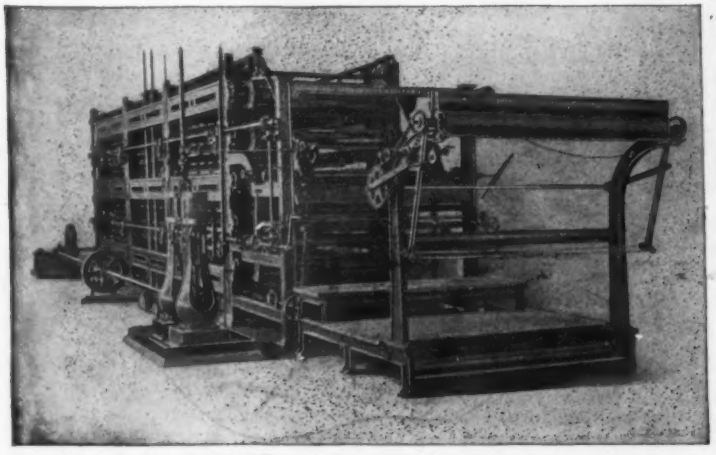
TENTERING AND DRYING MACHINES

WITH LOW DOWN FEED. **PATENTED FEBRUARY 26, 1895.**



Tentering and Drying Machines on Pipe System. Special Dryers for Heavy Felt Goods. Hot Air Drying and Tentering Machines.

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D. R. KENYON & SON, Raritan, N. J. **Successors to KENYON BROS.**

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2 MONTHS' TRIAL
YOU
TAKE
NO
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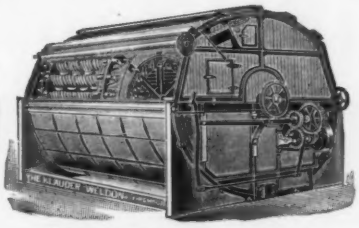

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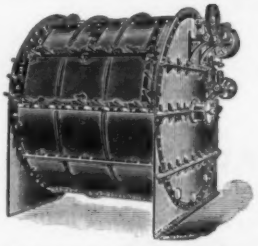
THE KLAUDER-WELDON DYEING MACHINE COMPANY

P. O. Box K, AMSTERDAM, N. Y.

Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



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WILL EARN THEIR COST IN
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IN FROM
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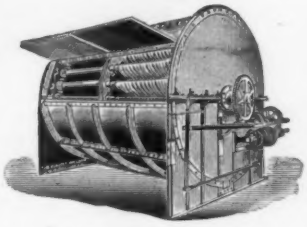
ACCORDING TO CAPACITY



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MAKERS OF MACHINERY FOR

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Special Machinery

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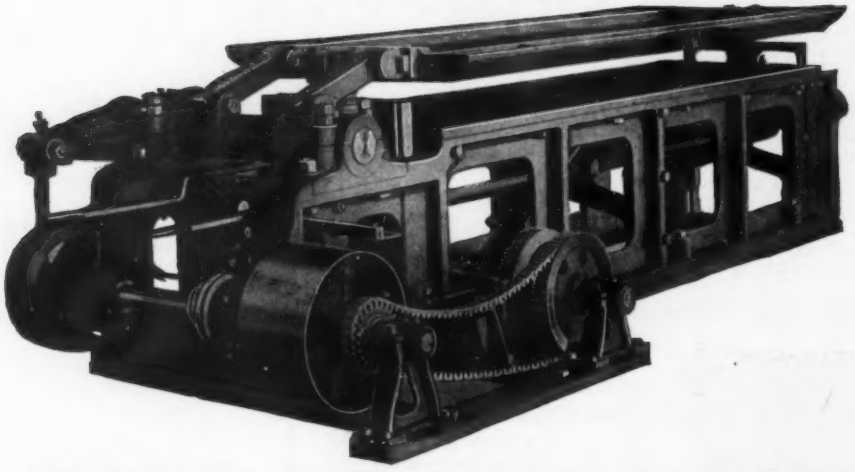

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Chilled and Soft Iron Rolls. Heavy Transmission Machinery.
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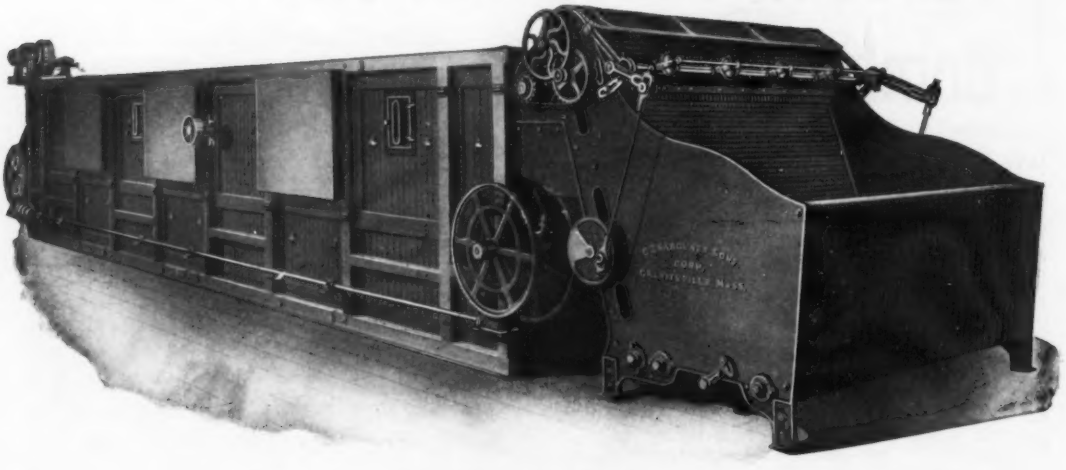

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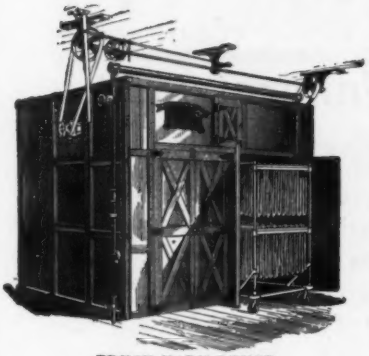

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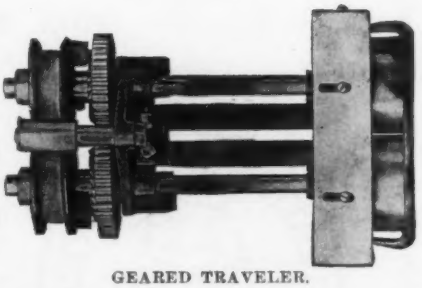
Dryers for Wool and Cotton Stock, Yarn, Stockings and Underwear.

Carbonizers, Yarn and Wool Scouring Machines.

Ventilating Fans, Bleachers.



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DYEING MACHINES, TOM TOMS, CHROMING, WASHING AND OXIDIZING MACHINES.

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Patented in the United States and Foreign Countries.

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WROUGHT STEEL

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Is a parting PULLEY and can be applied without stripping the shaft.
It is Light, STRONG, and lasts a lifetime.
It clamps to the shaft perfectly — keys and set-screws superfluous.
Interchangeable metal Bushings to fit shafts of different sizes.
Particularly adapted to TEXTILE manufacturing.

Sold by the Leading Supply Houses all over the WORLD.

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day by day from card room to cloth room gives

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VENTILATION & HUMIDIFICATION
BELL PURE AIR AND COOLING CO.
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The finest stock, the best machinery and the most skillful operatives count for little where unfavorable atmospheric conditions exist. The Bell System produces the best of English atmospheric conditions and automatically maintains them regardless of climatic changes.
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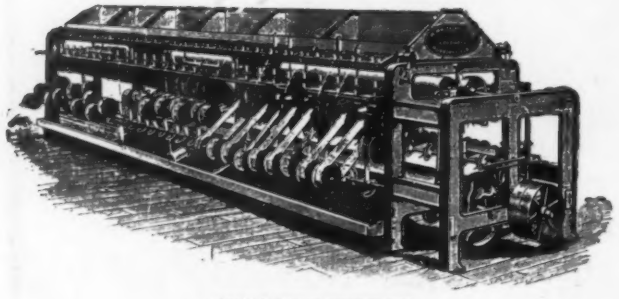

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Makers of all descriptions of Tentering and Drying Machines.
Moore & Whiteley's Patent Wool and Cotton Dryer.
Crabbing or Winding-on Frames.
Cross Raising Machines, Wool Scouring Machines,
Hydro Extractors. Warp Sizing.
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Second-hand Tentering Machines in good repair at low prices.

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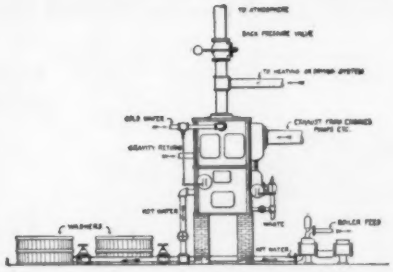
REPAIRS FOR RABBETH SPINDLES



HOW A SILK MILL SAVED $150 A MONTH

A few months ago we sold a Cochrane Feed Water Heater and Purifier to a silk mill. They now report to us that the coal saving amounts to about a car-load a month, or 50 tons, worth $3.00 a ton. Not only this, but they have a large water storage tank on the roof which formerly ran dry about eleven o'clock every day, due to drawing off feed water for the boilers. Since starting the heater, however, this tank has always remained full because the heater condenses and utilizes as boiler-feed enough exhaust steam to replace one-sixth of the water formerly drawn from the tank.

If hot water is required about a plant for other purposes than boiler feed, it may be drawn from the Cochrane Heater. We have put a considerable number of heaters into textile mills where a supply of hot water is required for the dye tubs or for washing purposes. This water is heated to about 210° F., and only a little live steam is needed to bring it to the boiling point. In this way not only is there a great saving in steam and coal, but time is saved and the output increased.

In other plants the exhaust steam, after being passed through a Cochrane Oil Separator, is used in heating or drying rolls, and the condensation is returned to the heater, together with all live steam drips and returns from traps, and utilized as boiler feed. The saving in water in this way is large and the water is pure and distilled and therefore excellent for boilers.

In addition to this, the heater purifies the cold, raw water, and protects the boilers from expansion and contraction strains.

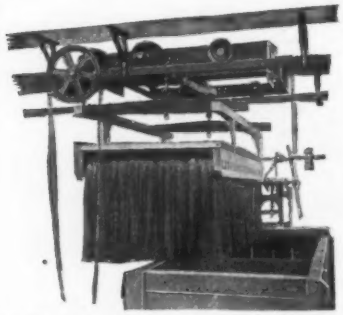
No other single apparatus will perform all these functions. To even approximate them requires expensive and cumbersome return tanks, separators, traps, filters, pump governors, etc. The Cochrane Heaters are of great assistance in removing those impurities which form soft scale. Where hard scale forming materials, or "permanent hardness" are found, we advise the use of our System of Water purification. Give particulars about your plant, and write for circular 13.H.

HARRISON SAFETY BOILER WORKS
3158 N. 17th Street, Philadelphia, Pa.

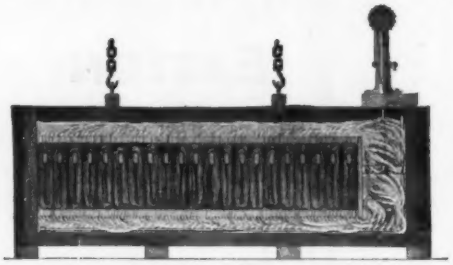
The Hussong Dyeing Machine

Patented Nov. 6, 1900. April 9, 1901. Nov. 29, 1904. June 5, 1906.

THE ONLY MACHINE THAT WILL DYE SULPHUR BLACK SUCCESSFULLY.



This illustration shows our Compressed Air Hoisting Carriage, with 300-pound Yarn Machine Suspended.



Longitudinal Sectional View, showing the circulation of dye liquor through the yarn when in operation.

Points of Superiority Which We Claim for the Hussong Machine.

Durability, Even Dyeing, Saving of Steam, Saving of Dyestuff, Saving of 75% in Labor, Makes No Waste Whatever, Requires but Little Power to Operate, No Friction on the Material, Leaves the Yarn and Slubbing in its Natural Condition.

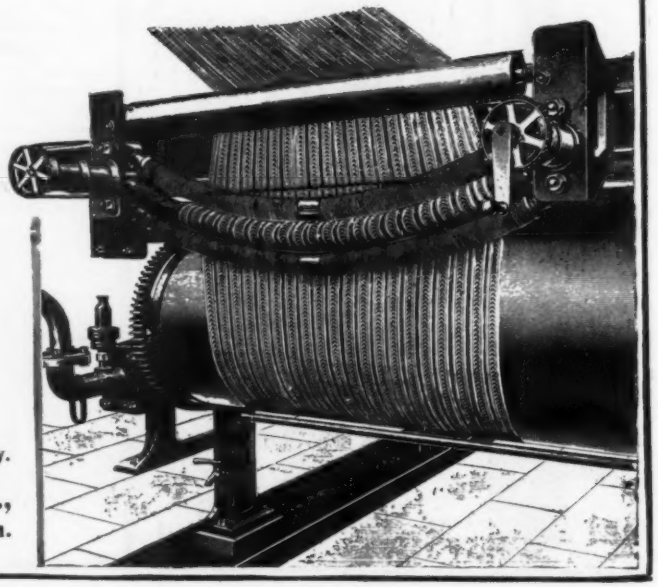
Built by the **American Dyeing Machine Co., Office 609 Pearl St., Camden, N. J.**

BEWARE OF INFRINGEMENTS.

Perfectly Even Tension Both Ways

THIS ideal cloth expander gets the full width of the goods in a most satisfactory way. Can be attached to calenders or cans. Hundreds in use in Great Britain and on the Continent—hundreds more in the United States, with constant satisfaction.

Manufacturers unsolicited say to us, "You have the greatest thing in a spreader ever brought to our attention."



We put them in on trial.
Test it on your own work—it will pay.

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**Cloth Washers, Dye Tubs, Vats, Fulling Mills,
Piece Dyeing Machines, Special Machinery,
Brass Founders, Tanks, To Order.**

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Spindles and Flyers, for Cotton, Wool, Silk, Flax, etc.

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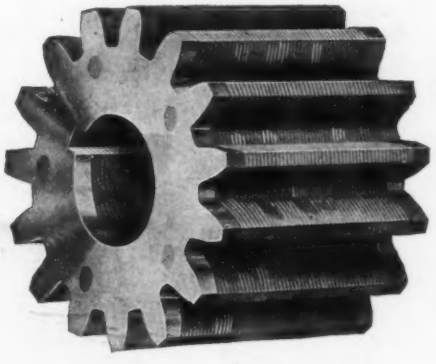
Dye Tub Valves, Cloth Guides, etc. Bronze or Porcelain Rings.

A Noiseless Pinion



The Durable New Process Kind

This pinion is made up with bronze flanges part of face which is the style of construction which we recommend for very severe service. Our new catalogue shows other styles. Let us send it to you.

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Reinforced Concrete Mill Buildings

We are prepared to furnish plans, specifications reinforcement details and supervise the construction of textile mills and industrial plants in general. Mill buildings built of this material are cheaper than the regular mill constructed buildings. We have several now under construction.

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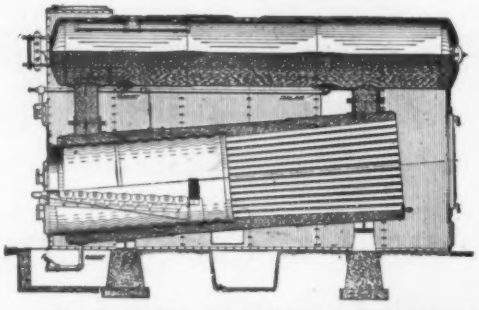

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Saving in Fuel
Durable, Safe

Built in all sizes from 60 to 250 horse power.

Send for Catalogue No. 14 on Internally Fired Boilers.

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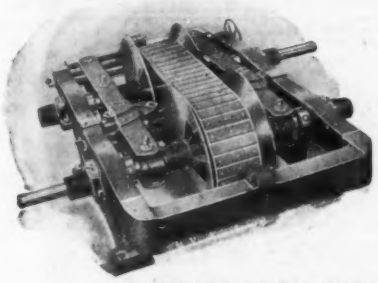

Used to regulate the speed of textile machinery such as tenter frames, driers, dyeing machines, printing machines, in fact any machine requiring variable speed.

INCREASES THE OUTPUT TO THE MAXIMUM

BETTERS THE QUALITY OF GOODS

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What more could you ask?

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Cost of twisting or drawing in fancy pattern warps.

Cost of hand drawing-in with stop motion.

Cost of hand drawing-in, plain work.

Cost of tying-in with **Barber Warp-Tying Machine** { Plain / Stop motions / Fancy patterns

The above comparisons are based on actual mill averages figured from the cost of twisting-in, drawing-in and TYING-IN at twenty New England mills. In addition to the above the increased efficiency of your weave room, due to the quantity and quality of the work with which it would be supplied, should in itself be of sufficient importance to warrant the purchase of a **BARBER WARP-TYING MACHINE.**

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"ROPE DRIVING"
IS THE MOST EFFICIENT AND ECONOMICAL MEANS OF TRANSMITTING AND DISTRIBUTING POWER.
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WE ARE SPECIALISTS.
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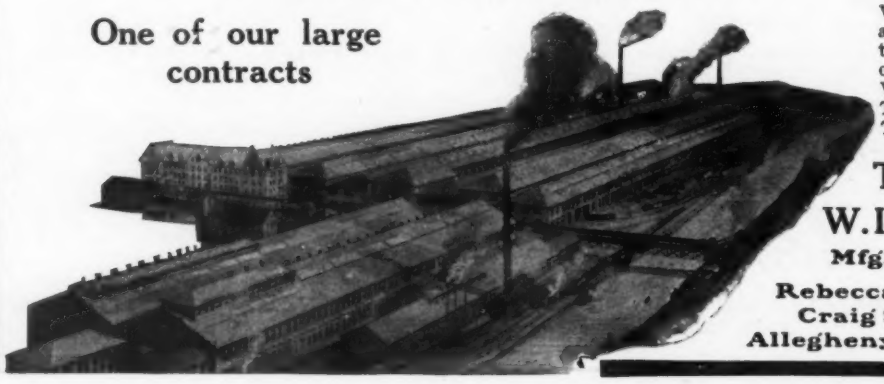
One of our large contracts



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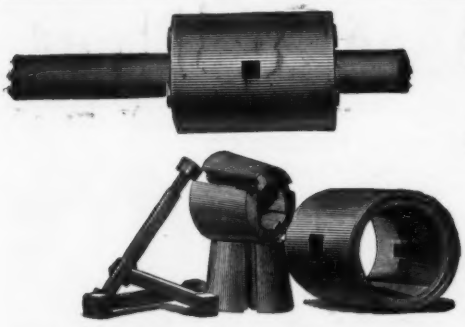

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has a way of holding shafts together, that no other COUPLING can equal.

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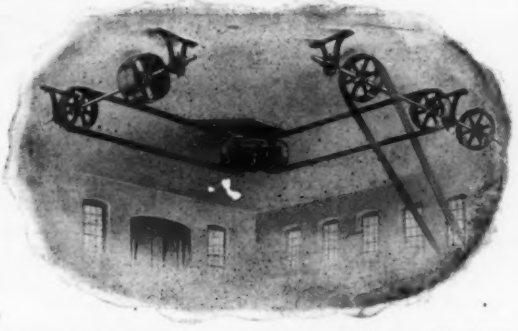
For running a countershaft at right angles to the main line, or to replace the mule pulley stand with which perhaps you have had more or less trouble?

If so, let us have particulars; perhaps we can offer some valuable suggestions.



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Mill Boxes, Baskets and Trucks

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Superior in quality of material and workmanship. Unexcelled for the various uses of a textile mill.

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This Company has installed more than 75% of the total horse power used in the electrically driven textile mills of the United States. Information given and estimates furnished at any office.

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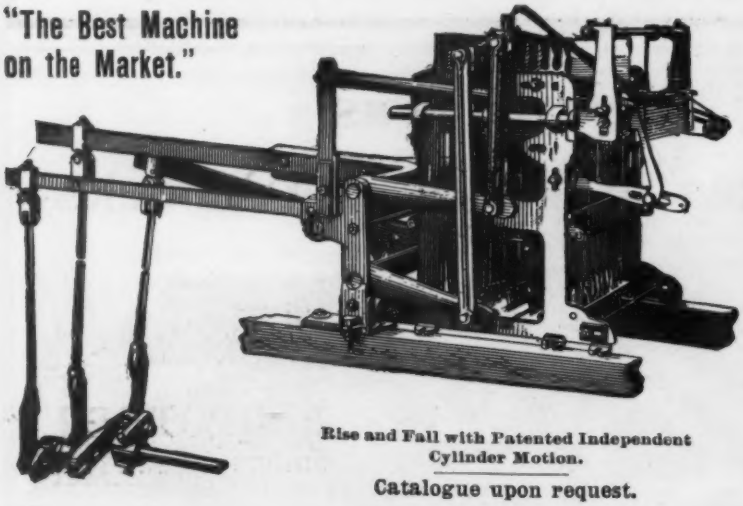
PHILADELPHIA OFFICE, 218 South Eleventh Street. ATLANTA OFFICE, Empire Building.

717

"The Best Machine on the Market."



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Catalogue upon request.

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Single Lift, Double Lift, Double Cylinder, Rise and Fall, Crossborder.

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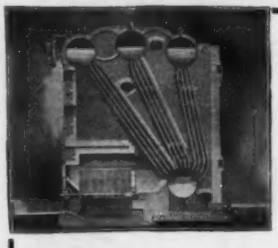
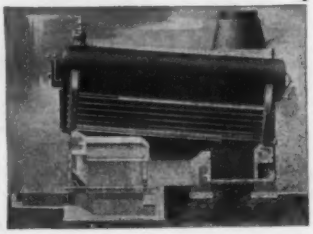


The Murphy Automatic Smokeless Furnace

Burns Slack with Great Economy

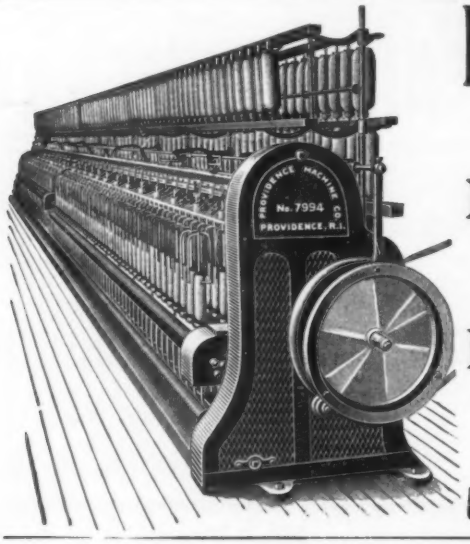
The Murphy can be installed under any type of fire-tube or water-tube boiler and to units of any size.



SETTING UNDER TWO TYPES OF BOILERS SHOWN HEREWITH

MURPHY IRON WORKS

DETROIT, MICH.



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Manufacturers of

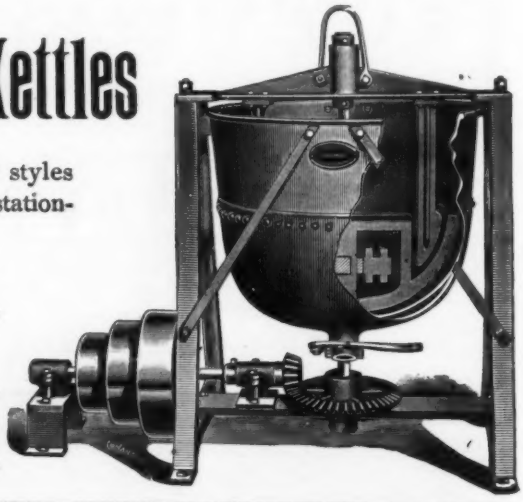
Improved Cotton Roving Frames

Improved Worsted Roving Frames

564 Eddy St., - - PROVIDENCE, R. I.

Established 1841.

Steam Jacket Mixing Kettles



This cut represents one of our many styles of steam mixing kettles, made with stationary and removable stirrers.

E. B. BADGER & SONS CO.,

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66 Pitts St., - BOSTON, MASS.

Badger Fire Extinguisher.

Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines

BIRCH BROTHERS, SOMERVILLE, MASS.

ALBERT BIRCH, TEXTILE MECHANICIAN

Bleaching and Napping Machinery

A perfect emulsion with the use of water only

SAPONIFIED OIL

Breton Brand.

BRETON OIL FOR WOOL TRADE-MARK

Assures free and easy scouring of yarn or cloth. Has the desirable features of scouring and fulling possessed by Red Oil.

We will send a barrel to you—payment to be subject to your test and approval.

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Mill Sewing Machines

No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

Manufactured by the

DINSMORE MANUFACTURING CO.

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Differential Chain Blocks

For Light Lifting

A Differential hoist can often do the work of one or two men. Figure the difference in cost. Or it will keep a workman from straining himself and perhaps from serious injury.

For odd jobs such as lifting light pieces into machines or or onto the bench, for handling counter shafting, setting overhead motors or for raising light parts of machines for inspection, the light, cheap Differential will frequently save much trouble and considerable cost.

Y & T Differential	Blocks—⅛ to 3 tons
Y & T Duplex	Blocks—½ to 10 tons
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From your Supply House.

Yale & Towne Mfg Co.
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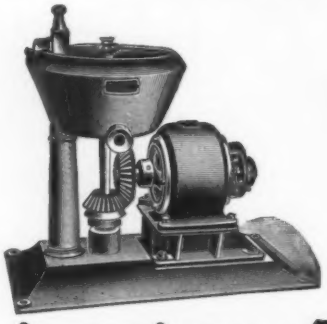

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MOTOR WOUND FOR ANY VOLTAGE.

Separates oil from bolts, nuts, and scraps of all kind—oil that would otherwise be wasted, and makes it as good as it ever was, for further use. **Send for Catalogue.**

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For QUALITY OF FINISH
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HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

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An ideal combination

for the rapid and economical handling of goods. They are effecting very material saving in the largest mills — yours is not so different. They stand the hardest kind of service.

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Live air — live employees

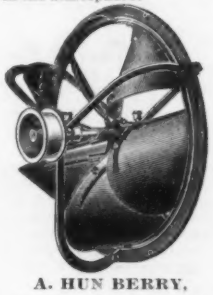
Bring in the pure air of the fields, make your work rooms fit to work in. Better working conditions mean better work.

A Berry Wheel

keeps pure air constantly circulating in every room. The increased vim and energy of your operatives will soon repay its cost.

Very efficient and economical for drying

This is our Berry Wheel, the most effective agent for moving air, eliminating steam and other impurities in the atmosphere.



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Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs.

Adjusts itself to an uneven load, runs without vibration. Unusual capacity for high-class work.

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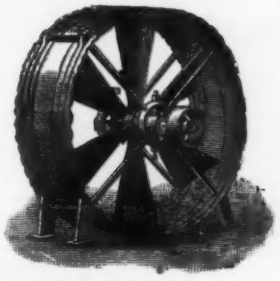

Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light.

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When PORTLAND SECTIONAL CONDUIT is used, the underground piping system is brought to the highest efficiency and economy.

Wood conduit soon rots, and, like brick tunnels, is highly inefficient.

Portland Sectional Conduit saves 88% of heat lost by bare and poorly insulated pipes; requires no maintenance; is permanently durable and will pay for itself in fuel saved in a few months. Write nearest Branch for Catalog 103.

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TEXTILE MACHINERY,

OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

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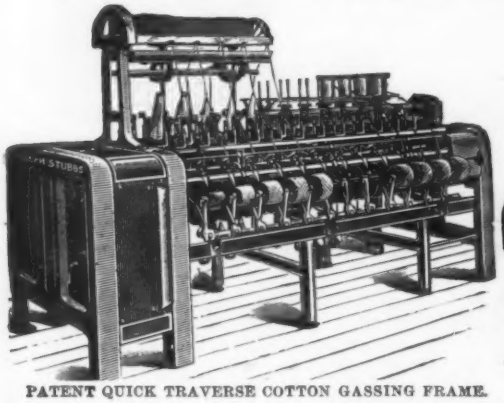
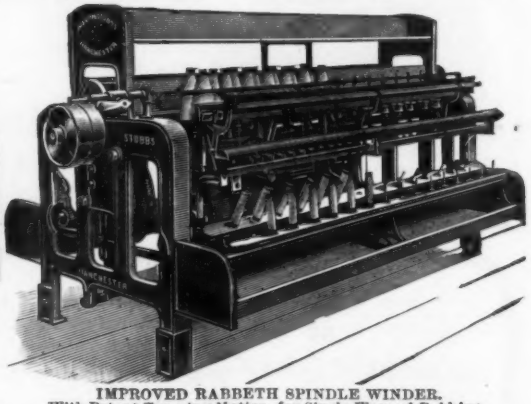
For Winding, Gassing, Reeling, Preparing, Polishing and Bundling Yarns.



PATENT QUICK TRAVERSE COTTON GASSING FRAME.



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With Patent Tapering Motion, for Single Flanged Bobbins.

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FREE SAMPLE SENT FOR TRIAL ON REQUEST.

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When buying Belting look Well to Quality

In many things price is important but it should not be the sole consideration with belting. The difference in price between two makes of belting is never so great as the difference in quality can be. One belt may cost a few cents or dollars (depending upon its size) more than another, but it takes but a short time for the loss in power due to slippage of a poor belt and *the loss of time by both men and machinery* when it is being tightened or repaired to amount to more than the first cost of a good belt.

Shultz "Sable" Belting is rawhide inside and tanned on the surface only. A special treatment gives it a smooth, kid-like surface which clings to the pulley. "Sable" belting is pliable because it is *not* tanned through-and-through like other belts. The original flexibility and toughness of the hide are retained in the belt. The rawhide fibres have not been injured and are long and tenacious. On the other hand, oak-tanned belting which is tanned through-and-through, loses its pliability. The fibres are short, stiff and harsh and the belting soon becomes hard. To keep it from slipping one must continually tighten it and "dope" it with dressings.

"Sable" Belting is made from selected heavy A 1 Packer Steer Hides and, because our process of tanning preserves its original strength, it is stronger and wears longer than other belts.

A "Sable" Belt will transmit from 25 to 33 per cent more power than any oak-tanned belt and to prove it we will send one on 90 days' free trial. If it is not all we claim it may be returned at our expense.

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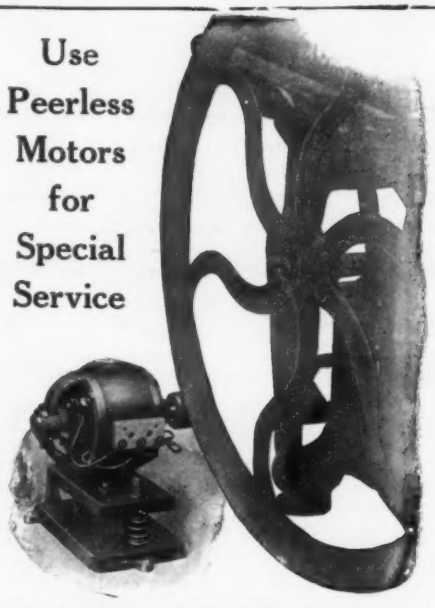
Use Peerless Motors for Special Service



The PEERLESS ELECTRIC CO., Warren, O.

Designers and Manufacturers of Direct Current Motors for any service.

MANY of the largest mills are rapidly equipping their leather-faced frictions with

Cork Insert Fibre Rings

Our "Ready-to-Use" Frictions are easily attached to looms now in use and enable manufacturers to get at once the increased efficiency that Cork Inserts give, without the expense of new clutches. **The cost is small, 14" and under, $1.00. Over 14" to 16" inclusive, $1.25. Over 16" special prices.**

The use of Cork inserts by the 53 mills given below is conclusive proof of their unusual merit.

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Pequea Mills
Andrews Mill Co.
Crown Mills
Rock Mfg. Co.
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Tioga Silk Co.
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The Warren Woolen Co.
Appel Sons Mfg. Co.
U. S. Bunting Co.
Colwell Worsted Mills
Tremont Worsted Co.
The Vernon Woolen Co.
Plainfield Woolen Co.
Altamahaw Cotton Mills
Landenberger Mfg. Co.
William Skinner Mfg Co.
Greenwood Worsted Mills
Intervale Mills Corporation
Forstmann-Kauffmann Co.
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Oakland Worsted Co.
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Send a trial order

for "Ready-to-use" Cork Insert Fibre Rings to the Crompton-Knowles Loom Works, Lowell Machine Shop or to the

National Brake & Clutch Co.

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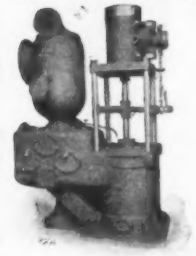
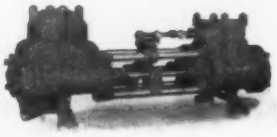
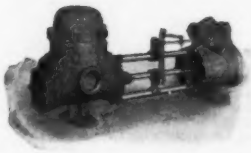
ATLANTIC BOILER FEEDERS
JET AND SURFACE CONDENSERS ELECTRIC PUMPS BELTED PUMPS, Etc.



VERTICAL AIR PUMP AND JET CONDENSER



DUPLEX DURABLE PUMP



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Exhaust Fans

Crocker-Wheeler 36-in. Vertical Fan Outfit. See Bulletin 54-Y.

FOR VENTILATING AND FOR REMOVING STEAM FROM THE DYE HOUSE.

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"Wear Well" Leather Packings are made from the very best grade of leather for use in Hydraulic and Compressed Air Machinery.

We want the privilege of proving to you that we can save you money on Leather Packings, regardless of what make you are using or if you are making your own packings.

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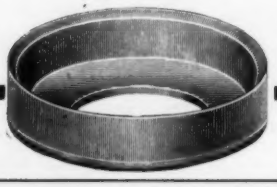

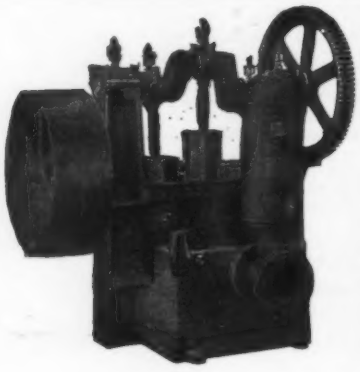

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We manufacture a complete line of Triplex Pumps for every service and will be pleased to send catalog on application.

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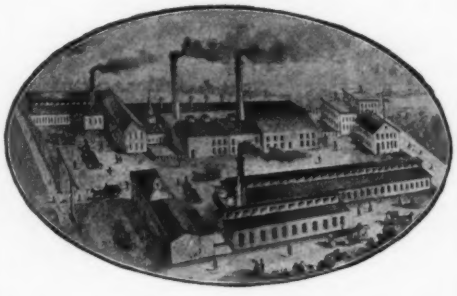

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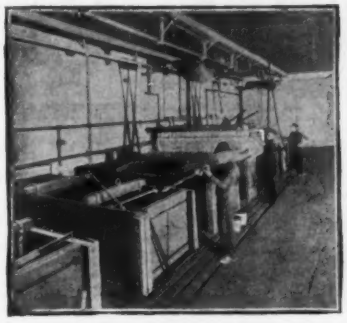
This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.

The saving of labor will more than pay for a machine in a few months.

Capacity; 2,000 lbs. a day per man.

Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

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Creosoted Flooring never rots

Floor planks treated by our process are laid just like an ordinary floor and are so long lived that they are ideal for Dye Houses, Wet Finishing Rooms or wherever processes keep the floors wet. Creosoted Flooring retains all of its original strength, never rots under any conditions and does away with the expense and annoyance of frequent renewals. It's a saving and satisfactory solution of the floor problem. Tell us the style, width and thickness of your flooring, the quantity required, and we will tell you what it will cost.

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¶ Fine stamping on selvage or ends of piece goods, hosiery, underwear, etc., in gold, silver and colors by the cheapest process known. No machinery required, dries instantly and done as quickly as goods can be handled.

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Day and Evening Instruction in...

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Instruction given in Designing, Weaving, Carding, Spinning, Chemistry, Dyeing and Finishing.

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Special Courses in Textile Chemistry and Dyeing

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Put Your Belting on Piece Work

Everywhere possible in your plant, your employees are paid for what they produce, not for the hours they lean gracefully over a machine.

How about your belting—you buy it to deliver so many H. P. per hour for sixty hours a week—It slips—it "lays down" and has to have slack taken up—it breaks and "loafs."

Put it on piece work or get a reliable belt—Leviathan Belting.

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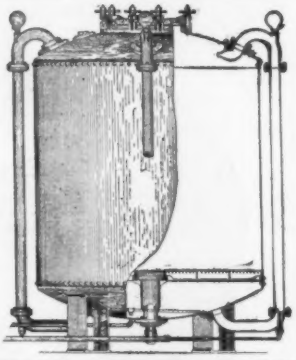
A Kier that does the work of two

on raw stock if discharged by our Hydraulic Lift.

All styles for raw cotton and yarns, alsofor knit goods, cloth and laces. Many already in use.

Write for prices and particulars.



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Washes out easily. Saponifies perfectly.

The best lubricating and softening product for Wool, Cotton, Wool and Cotton mixed. For some manufacturers *it elsminates* the scouring process which is required with all other wool oils. In all cases it effects large saving in time and soap, insures clean goods and superior fabric. *It will not* gum in the cards. Write for samples, prices and particulars.

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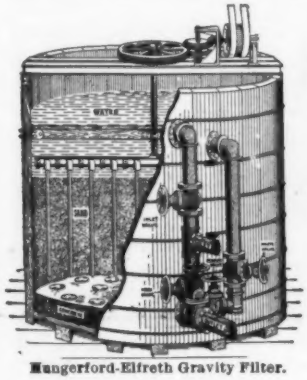

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WATER SOFTENERS INTERMITTENT and CONTINUOUS

There is only one Filter, the

HUNGERFORD - ELFRETH,

the only filter which exceeds its guarantee.

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Twelve Arm construction used on pulleys 12" to 28" diameter inclusive, 14" to 24" width of face inclusive.

The Latshaw Steel Split Pulley runs true, is a double belt pulley, bushed to fit all shaft sizes, furnished by mill supply dealers throughout the U. S. and Canada.

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Rope is up—*Trojan Bale Tie* and *Band* is down.

Trojan Band is made plain or galvanized in coils from 2000 to 3000 feet without a break. Widths ½, ⅝, ¾ and 1 inch.

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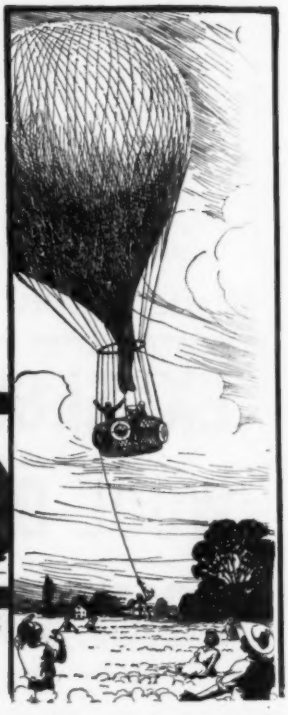

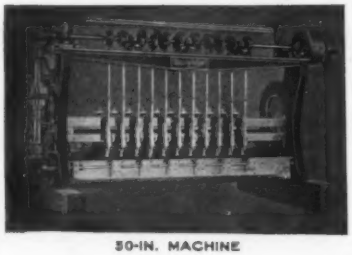

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FOR ALL PURPOSES WHERE A NUMBER OF ROWS OF SEAMS ARE REQUIRED

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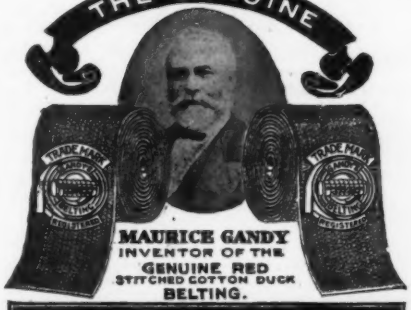

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Does not Drip, Splash or Waste Away

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Run true on card table—
have a very smooth finish

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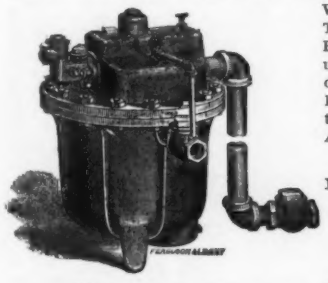

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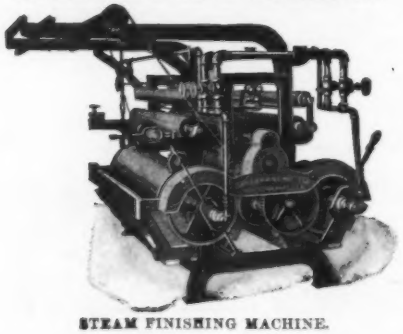

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40th Annual Statement

January 1, 1907.

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Reserves, 1,931,847.29
Assets, 3,978,245 71

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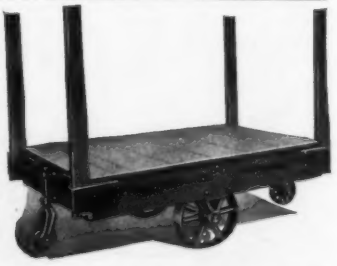

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Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.

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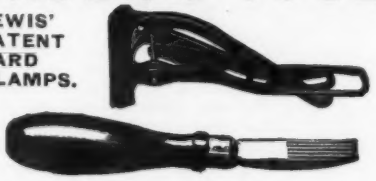

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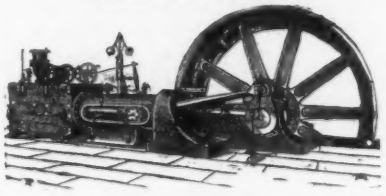

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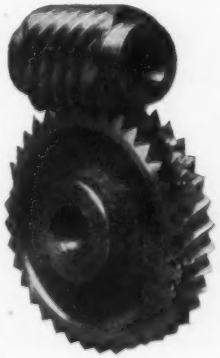

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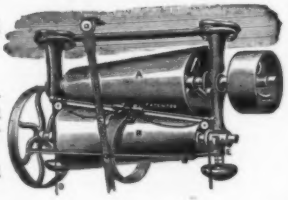

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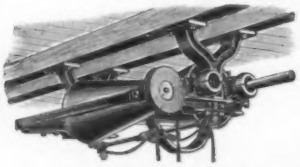

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In the Manufacturing of **SPINDLES,**
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THE CHAFFEE PATENT CLOTH BOARD,
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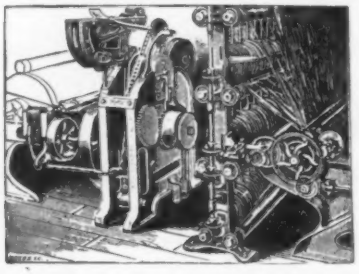

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With all the latest improvements for Wool Cards. The latest and best and only feed that will make yarn positively even.

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CHOQUETTE WASTE SAVER. Saves card fly.

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Every Textile Manufacturer has his own special problem. If these problems relate to CLOTH CUTTING in any way, shape or form we are always glad to volunteer our help in solving them.

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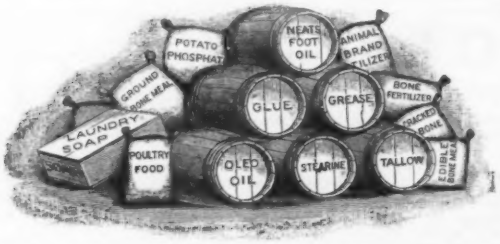

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Important Improvement in Worsted Spinning.

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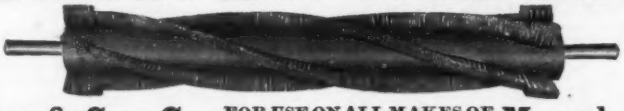

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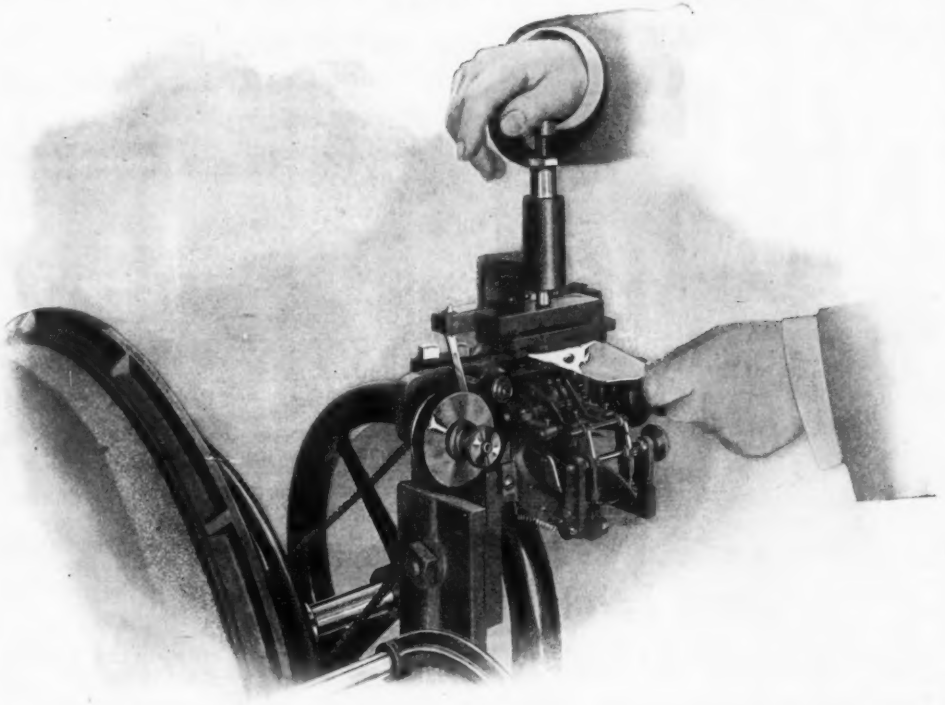

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You may try it thirty days.

Our representative will call if you are interested.

OPERATION — Set the printer at zero (done instantly by a partial turn of two thumb nuts); measure the goods in the regular manner. At the end of each piece insert the ticket to be attached, in slot, face down, and strike plunger above a light blow with the palm of the hand as illustrated in cut.

Check figures thus printed with measurement as recorded on the regular dial on machine. Make entry in the mill record book from the ticket, attach latter, reset printer to zero and repeat. A suggestion only. We expect you will operate this printer in the manner best adapted to the system in your finishing room.

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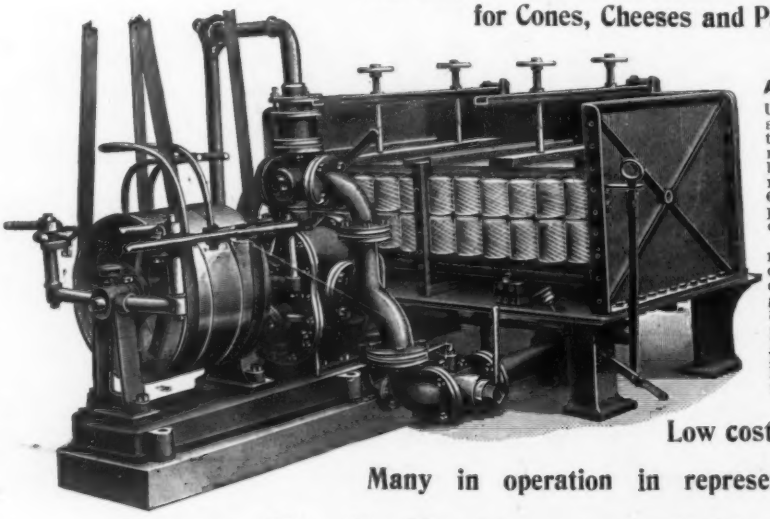

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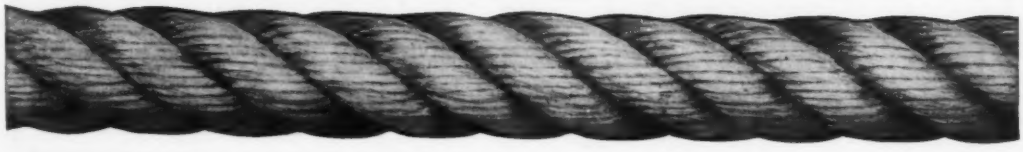

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Published Monthly by

LORD & NAGLE COMPANY,

FRANK L. NAGLE, President. HENRY G. LORD, Treasurer.

144 Congress Street, Boston,

Publication and Editorial Office

119 South 4th St., Philadelphia. 123 Liberty St., New York. 463 East 42nd St., Chicago.

Entered at the Boston Post Office as Second-Class Mail Matter.

SAMUEL S. DALE, Editor. E. A. POSSELT, Editor Process Department.

Subscription and Directory Rates.

The Textile World Record, including **Annual Official Directory**, (Traveler's Edition),	$3.00 per year
The Textile World Record, without the **Directory**,	$2.00 per year
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PART I. Contains a complete directory of all the textile establishments in the United States and Canada. It tells what goods are made, the number of sets of cards, spindles, looms, whether and what they dye or finish, steam or water power, who the selling agents are, the names of the officers, superintendent and buyer.

There are 22 textile maps; gives population of town and railroad connections.

PART II. Is the Yarn Trade Index, containing classified lists of yarn spinners, arranged according to kind of yarn, size and number spun, etc. All the mills with worsted machinery are included in this section.

PART III. Contains Classified List of mills doing order and commission work, also dyeing, finishing, bleaching and printing establishments, classified according to the kind of work done, and so far as possible giving width of goods handled; also shoddy, extract and flock manufacturers and wool scouring establishments.

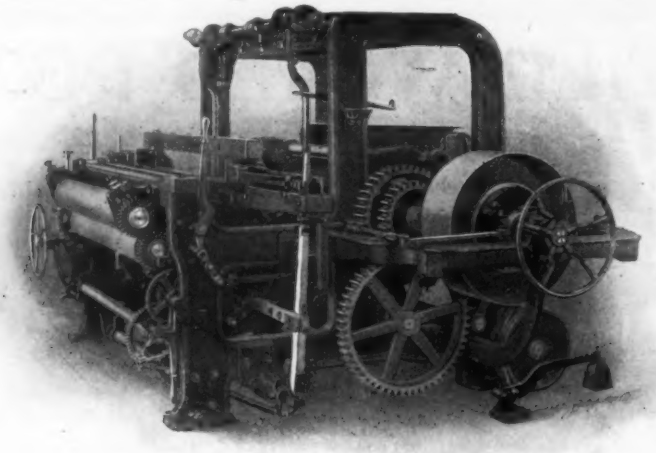
PART IV. Manufacturer's Selling Agents and Dry Goods Commission Merchants, giving the name and address of concern, character of goods handled, different departments, with managers, list of manufacturing clothiers, and suit and cloak manufacturers, giving specialties and buyers' names. A list of city offices of textile mills is given.

PART V. Dealers and Brokers in raw materials and stock, including wool and shoddy dealers and brokers, cotton dealers and brokers, factors and buyers and wholesale rag dealers making a speciality of textile interests.

PART VI. Buyers Index of Textile Machinery and Supplies, and statistics showing textile machinery in the United States, giving spindles, looms, knitting machines, etc.

The Directory of the Knitting Trade in the United States and Canada

is published early each year by LORD & NAGLE CO. It is a complete directory of all the establishments in the United States and Canada manufacturing knit goods. It gives the location of the mill, the capital stock, names of the officers, superintendant and buyer, class of goods made, the machinery, including number of knitting machines and sewing machines, selling agents, if any, and in most cases the class of yarn bought. It also contains a list of commission houses making a specialty of knit goods, and jobbers and large retailers having knit goods department, in most cases giving the names of manager in charge of knit goods. The book is small so that it may be carried in the pocket. Price is $1.00.



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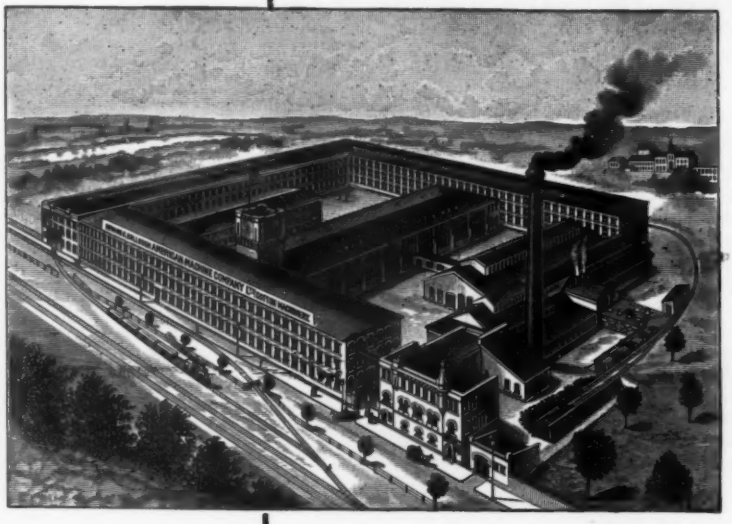

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The Textile World and Textile Record.

VOL. 33 (NEW SERIES.) August, 1907 No. 5

Monthly Comment.

A Standard Cut at Fall River.

Fortunately the cut recently adopted at Fall River is not a cut of wages, but a cut of cloth. At a conference of the employers and operatives last month it was agreed that 47 1/2 yards should be the length of the standard cut by which weavers' wages are calculated in that city. This agreement was a compromise, the weavers withdrawing their demand for a 46-yard cut, while the mill owners dropped the idea of making the speed of the looms a factor in the calculation. This agreement is important not only because of its immediate effect in preventing a serious strike, but because it is a step, even though a very short one, towards standardizing cotton mill wages in the United States. We are far behind England in this respect, but that is a natural result of the greater age and concentration of the industry in Lancashire. The trend here, however, as everywhere, is toward standardizing, and the friendly spirit in which the standard cut was adopted at Fall River last month is a most encouraging sign for the textile industry in this country.

The Cancellation Abuse in the Woolen Trade.

One of the principal objects of the Association of Woolen and Worsted Manufacturers, organized some months ago, is to remedy the cancellation evil in the woolen and worsted trade. As long as the efforts to correct this abuse were confined to manufacturers and selling agents acting separately little progress was made because the buyer was able in almost every case to find some weak-kneed selling agent to play against the one who objected to the cancellation. With practically the entire trade united under two organizations—the American Woolen Company and the new Woolen and Worsted Manufacturers' Association—substantial progress has been made in bringing buyers to terms. That these terms are in no way unfair to the buyer was indicated in a recent circular issued by Wm. Wood & Co., of Philadelphia, who are among the largest manufacturers in the Woolen and Worsted Manufacturers' Association. This circular is as follows:

Cancellations will be accepted when goods have not been made, or are not in process; or if al-

ready made or in course of manufacture, and we can use the goods in filling other orders for which provision has not yet been made. If, however, acceptance of cancellation would leave goods made on order on our hands, the cancellation cannot be accepted.

Transfers from one style to another will be made for accommodation of our customers under the same conditions as govern acceptance of cancellations, i. e., when the result of the transfer will not leave goods on our hands.

Prices—When transfer can be made, if both the style from and to which transfer is made is in the same range, the price at which original order was placed will apply to the style to which the transfer is made. If the transfer desired is to a style in another range, the current price at the time of transfer will be charged on the style wanted.

Deliveries—A transfer from one style to another usually involves a delay in delivery, and when transfers are made it must be understood that shipment of the quantity transferred will probably be made later than specified in the original order.

We desire always to accommodate our customers in every way we can without incurring serious risk of loss. If, therefore, we can comply with a request for either cancellation or transfer it is done promptly and cheerfully. If we decline, it is for the reason mentioned, and while regretting our inability to acquiesce in such cases, the decision must be accepted as final.

Orders are not booked with any privileges of cancellation or transfer, and compliance with such requests is therefore entirely a matter of accommodation and must depend upon the conditions we have already mentioned. We are careful to have our policy clearly understood and to apply it alike to all customers without exceptions. Those who do not care to buy upon our terms and conditions should not place their orders with us.

Careful attention to the information contained in this circular will save much needless correspondence.

Bad Baling of American Cotton.

A valuable contribution to the discussion of this subject appears in another part of this issue. It is the account of President Harvie Jordan's recent visit to the Manchester docks, written by himself and published in "The Cotton Journal" of Atlanta. Of course he discovered the disgraceful condition in which American cotton is landed there; everyone does who goes there. He was also ashamed of it, as every true American is, and gives this expression to his feelings:

"It was a sight to make the heart of a Southerner grow sick to see in a foreign country our valuable staple commodity being picked and thousands of pounds being thrown aside as useless and unfit for commercial purposes."

But the important result of President Jordan's visit was his discovery that in the end the American cotton planter paid for the damage for which he was not responsible. The comparatively few dealers in the cotton trade are, of course, well acquainted with the facts, but they are satisfied with conditions as long as they are not called on to pay for the damage. The cotton planters, scattered throughout the cotton belt do not realize the facts and for that reason are in the main satisfied with existing conditions even when they bear the loss.

To bring about a reform in the baling of American cotton it is necessary to arouse the people who pay the cost to the fact that they are paying it. Then things will begin to move, and unless we misjudge Southern character, they will move rapidly, and all the more rapidly because those who bear the loss are not to blame for it. It is for this reason that President Jordan's visit to the Manchester docks and the publicity he is giving to his discoveries there are calculated to be of inestimable benefit to the cotton trade.

The Cotton Conference at Atlanta.

Previous to the First Cotton Conference at Washington last year cotton growers and manufacturers had been working at cross purposes in ignorance of each other's needs and difficulties. Engaged in the same industry, in which the product of one branch was the raw material for another, they nevertheless were practically strangers to each other. Misunderstandings were deeply rooted and each blamed the other for evils for which neither was responsible. This unfortunate separation of people engaged in mutually dependent occupations, was the result of several causes. Chief among them, however, was the great distance separating the manufacturing centres from the cotton fields. Comparatively few cotton manufacturers in our Northern States have ever seen a cotton field. It is not strange, therefore, that spinners and weavers of England, Continental Europe and Asia were out of touch with the Southern planters. The first step toward remedying this state of affairs was taken at Washington. The Cotton Conference there last year, although brought about hastily

and lacking many of the elements necessary to complete success, had not been in progress more than an hour or two before its great possibilities for good were evident to all. The producer of the raw material and the manufacturer of goods met face to face, discussed their differences freely and learned of their past mistakes.

This work is to be resumed at Atlanta next October and we believe that the necessity for its continuance will result in making these conferences a permanent institution of the cotton trade. In connection with the Atlanta Conference a tour of the cotton belt has been arranged, affording an excellent opportunity to see the cotton as it is gathered, ginned and compressed for shipment.

[Prepared by Land and Industrial Department, Southern Railway Co., Washington, D.C.]

ROUTE OF THE INTERNATIONAL COTTON EXCURSION.

The train on which this tour is made will start from New York at midnight, Thursday, October 3, and reach that city on the return trip on Monday, October 21. It will be in charge of M. V. Richards, the well-known land and industrial agent of the Southern Railway Co. Mr. Richards is thoroughly familiar with the territory, having conducted other excursions through the cotton country, including one made by the English spinners last year. The route, which is shown on the accompanying map, passes through seventeen states and Ontario, Canada, with stops in the cities of New York, Philadelphia, Baltimore, Washington, Charlotte, Atlanta, Birmingham, New Orleans, Galveston, Memphis, St. Louis, Chicago, Toronto and Niagara Falls. Arrangements have been made to give each passenger an entire section in the sleeper. Three meals daily will be served on the train. Reports from abroad indicate that there will be nearly one hundred visitors from Europe who will attend the conference and take the excursion through the cotton belt.

The "Manchester Guardian" of July 27, states that the following named delegates will attend the Conference as representatives of the various cotton trade associations of Europe:

From England: Messrs. Thomas Ashton, Stanley Ashworth, Albert Ashworth, Edwin Barlow, J. R. Barlow, George Buckley, Charles A. Byrom, T. W. Chadwick.—Chadwick (Heywood), Samuel Clegg, Samuel Clough, Frank Dickens, William Dodd, John Emery, T. H. Forgan, Oscar Griffith, Thomas Hallam, G. C. Haworth, R. Holden, William Howarth, Henry O. Hutchinson, R. H. Jackson, Henry Killick, Alderman James Lawrence,—Latimer, — Leach, — John Lonsdale, jun., J. O. Lees, J. L. Lord, H. W. Macalister, C. W. Macara, G. R. Marsden, John M'Connel, S. H. Milnes, Samuel Newton, G. R. Newton, W. C. Nation, W. J. Pearson, James Prestwich, Arno Schmidt, F. R. Sewell, John Shaw, C. R. Shaw—Shaw, jun. (Bolton), John Smethurst, John Smith, Randolph Smith, Ernest Stott, Harry Stott, J. B. Tattersall, J. M. Thomas, George Whitehead, Handel Whittaker, J. Yates.

From Germany: Messrs. Arthur Arnold, Moritz Brügelmann, Herman Burkhardt, Carl Clauss, Erich Fabarius, Max Goll, W. Gross, — Kahn, Alfred Kremser, Herman Laurenz, Theo. W. Schmid, Felix Schwartz, L. Steinegger, jun., F. Uebel, Adolph Waibel.

From Austria: Messrs. O. Anninger, K. Fischer von See, E. Frieser, Hans Haebler, Franz Knappe, sen., Arthur Kuffler, Robert Mitscherlich, Hugo Moller, A. Raudnitz,—Riecken, — Schindler.

From France: Messrs. Levis. A. Mabire, Duvillier-Motte, F. Motte, R. Nicolle, Paul Ancel-Seitz.

From Belgium; Messrs. Albert Buysse, Marcel Buysse, A. Hebbelunck, Carlos de Hemptinne, Octave von Laeghen.

From Italy: Messrs. Pietro Bogni, Dr. Tullio Fossati, A. Sutermeister, Ettore Vallesi.

Spain and Russia will each send a delegate.

Sir William Henry Perkin.

The founder of the coal tar dyestuff industry, Sir William Henry Perkin, died at London on July 14. He was born in that city on March 12, 1838. His father, a builder and contractor, was desirous of having his son become an architect, but the latter's enthusiasm and proficiency in the study of chemistry led to his entering the Royal College of Chemistry in his fifteenth year. In 1855 young Perkin became assistant to the celebrated Dr. Hofmann, and a year later, at the age of eighteen, and while making experiments to produce quinine artificially, obtained the coloring matter known as mauve from benzene, a constituent of coal tar. He recognized at once the importance of the discovery and had the process patented. This was the real foundation of the coal tar color industry, which has since grown to vast proportions.

Upon obtaining his patent Perkin resolved to engage in the manufacture of the new color, and along with his father established works near Harrow. The new color was marketed under the name of Tyrian Purple, and was soon perfected so as to make it applicable to cotton as well as to silk and wool. In 1874 Perkin retired from manufacturing and has since devoted himself to scientific investigation. In addition to the epoch-making discovery of mauve the results of his work include the artificial production of madder on a factory scale, the synthesis of glycosine and tartaric acid, and the production of coumarin and cinnamic acid. Although the great industry that resulted from Perkin's discovery was transplanted to a foreign country, yet before his death a change of the British patent law, removing the discrimination against the British color industry, had become a certainty of the near future and Perkin thus had the satisfaction of knowing that his own country would have its proper share in the industrial benefits of his life work.

Vacations for Mill Workers.

There has been a growing tendency in recent years to extend the benefits of an annual vacation to the workers in textile mills, who, as a matter of fact, are in much greater need of vacations than many who have long been accustomed to take one.

How to arrange the vacations of the operatives with the least disarrangement of the mill work has been a great problem for mill managers to solve. A general shut-down of the mill involves a heavy expense as the production is lost while a large amount of the fixed charges continue unchanged. Furthermore, many of the operatives find it inconvenient to take their vacation at such a time.

In a recent conversation a prominent New England manufacturer spoke of the vacation plan he had found to give excellent satisfaction. Instead of shutting down the mill he let it be known to all the operatives that any who desired could take a vacation by making arrangements at the office. For those who applied a date was arranged and the operative was requested to secure a substitute if possible during his absence. In nearly every case the operative did his best to secure such a substitute and in many cases succeeded. The manufacturer said that many who started on a vacation returned before the allotted time had expired, thus reducing the loss of time in the mill. Another advantage of this method is that the vacations are arranged to suit the worker instead of having a vacation forced on all the operatives at one time.

The practical results of this plan, which our manufacturer stated he had followed for two seasons, was that the production was reduced very little, possibly not over 20 per cent. during the vacation season. It appears to be a very feasible solution of what is from a business point of view, an annoying problem.

Foreign Wool and Woolens.

The report of our foreign trade for the 11 months ending with May show the imports of wool and woolens to be ahead of the amount reported for the same period last year, and equal to that for 1905. Estimating June at the rate for the 11 months the total for the year amounts to $65,005,833 for both raw wool and manufactured woolens. This consists of 210,063,010 pounds of wool valued at $42,871,672, and goods to the value of $22,134,161. Assuming that one dollar's worth of goods represents three pounds of wool, the total imports represent 276,565,493 pounds added to the wool supply of the country.

It is much to be regretted that the lack of official statistics makes it impossible to compare the foreign supply with the domestic clip. The amount of wool imported is so large, however, as to call for an investigation with a view of determining whether the domestic production can be developed so as to make the country less dependent on foreign sources for the supply of this material. At present wool receives no attention from the government as regards gathering statistics and studying the influences affecting its growth. This is the more remarkable by contrast with cotton growing, which occupies the attention of a large and expensive force of government employes, and is the subject of frequent official bulletins and an extensive system of statistics.

Some Facts and A Question About Sewing Thread.

In the July issue we gave some figures relating to the retail price of cotton sewing thread, which had recently been advanced from five to six cents a spool. This month we are able to give some additional particulars.

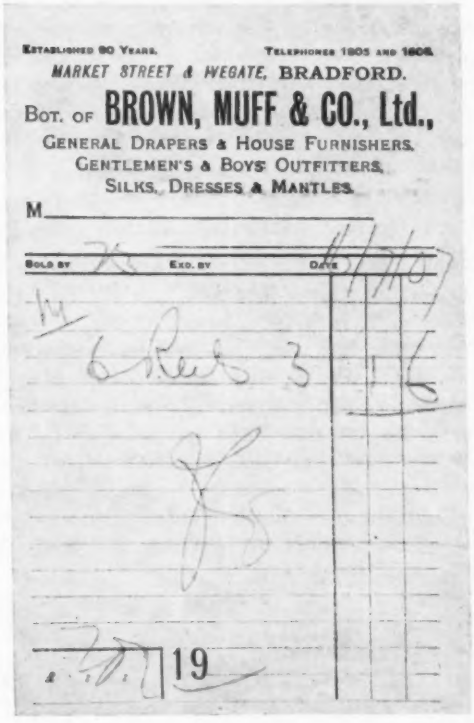
On July 16 our representative bought in Bradford, England, at our request six spools of Coats' thread, of the same number and color as those we had bought in Boston, 30, 36 and 40 black, 50, 60 and 70 white, all 6-cord. He informed us that he had to send 400-yard spools, and that the price had recently been advanced in England from 2 3/4d. (5 1/2 cents) to 3d. (6 cents). This at once disclosed the interesting fact that 400-yard spools of Coats' thread are retailed in Bradford at the same price, 6 cents, as is charged for 200-yard spools in Boston. That is, the price in Boston is double that in Bradford.

We next measured and weighed the thread on each of the English spools, finding it equal to the indicated length, and the weights to be as follows:

	Net weight.	Cotton count.
30 black	383 grains	6/52
36 black	332.1 grains	6/60
40 black	281 grains	6/71
50 white	215.8 grains	6/92
60 white	197.4 grains	6/101
70 white	171.4 grains	6/116

By referring to last month's issue it will be seen that the American and English sizes of the thread are practically the same.

The Dingley duty on spool cotton is 1/2 cent for every 100 yards. We thus find that the British consumer pays 3 cents for



SALES SLIP FOR 6 400-YARD SPOOLS OF THREAD IN BRADFORD.

200 yards; the American consumer pays 6 cents for the same quantity; while the duty is 1 cent. In other words, the additional price paid in the United States is three times the duty. As the English and American sizes are nearly identical the same result will be obtained by comparing the prices by the pound:

	English.	American.	Difference in price.	Duty.
30 black	$1.10	$2.31	$1.21	$0.37
36 black	1.26	2.56	1.30	.42
40 black	1.49	2.92	1.43	.50
50 white	1.95	4.05	2.10	.65
60 white	2.13	4.37	2.24	.71
70 white	2.45	4.94	2.49	.82

All this is extremely interesting because it apparently eliminates the tariff from the question to a large degree. There must be some other influences affecting supply, demand and price, for even the most rabid tariff smasher has never claimed that the consumer pays three times the tax. This led us to collect information regarding the companies manufacturing thread in England and the United States. Two companies, Coats, Limited, and the English Sewing Cotton Co., control practically the entire sewing cotton business in both Great Britain and the United States. Coats, Limited, with headquarters at Paisley, Scotland, has mills at Pawtucket, R. I., and Newark, N. J. The English Sewing Cotton Co., with headquarters at Manchester, England, own the common stock of the American Thread Co., which operates mills at Willimantic and Glasgo, Conn., Westerly, R. I., Fall River and Holyoke, Mass. In addition to their British and American works, Coats, Limited, operates thread mills at Torello and Barcelona, Spain, St. Petersburg, Russia, and Pressburg, Hungary. The manufacture and sale of thread in the United States are, consequently, but part of the business of two British companies whose operations extend to many parts of the world, and to a certain degree eliminate competition between different countries.

The chief source of the strength of the two companies lies in the good will of the consumer. The Coats and the Clarks started the manufacture of thread more than a century ago in Paisley, Scotland. By making thread as good or better than was made by any one else Coats and the English Co. have won and held the confidence of the trade in all countries to such a degree that consumers insist on having their brands. Each of these com-

panies markets its thread under many different trade-marks and at different prices. In England, for example, Coats', Clarks', Brooks' and Chadwicks' thread is all made by Coats, Limited. Another company might offer better thread at a lower price and fail to sell to the retailers and consumers who have used thread under the old names all their lives. In fact Coats, Limited, and the English Sewing Cotton Co. would find it difficult, if not impossible, to market under new names the thread that now sells readily under the old. Such is the value of good will and a good name in the thread business.

The profits in thread manufacturing have been large. This is shown by the dividend record of Coats, Limited, for ten years:

IN THE UNITED STATES. IN ENGLAND.

THE AMERICAN AND BRITISH 6-CENT SPOOLS.

1897	.....	20 per cent.
1898	.....	30 per cent.
1899	.....	40 per cent.
1900	.....	50 per cent.
1901	.....	20 per cent.
1902	.....	20 per cent.
1903	.....	20 per cent.
1904	.....	20 per cent.
1905	.....	20 per cent.
1906	.....	25 per cent.
10 years.		265 per cent.

In addition 20 per cent. has been paid annually on £3,000,000 of the preferred ordinary, and 6 per cent. on £2,500,000 of the preference shares, which make a total of $94,405,500 paid in dividends alone in the decade named.

The Coats selling organization in the United States is the American Spool Cotton Co., New York. The goods are sold through jobbers who receive as profit at the end of every six months a percentage of the total sales of thread. One of the leading Boston jobbers informed us that the present price of six cents a spool (72 cents a dozen) is divided as follows:

Retailer	$0.109
Jobber	.061
Manufacturer	.55
	$0.72

We were also informed that the thread is sold delivered in any part of the United States, so that all dealers own it at the same price.

Coming now to the cost of production we find what is probably the largest single item, the cost of raw material, to be the same in all countries. The world has free trade in cotton, and consequently, the raw material for cotton thread is delivered to British and American mills at practically the same price. The item next in importance is the cost of labor, which is higher in the United States than in Great Britain. While we are unable to offer any comparative statistics bearing on this point, the following extract from "The Thread Industry," by Matthew Blair, Paisley (1906), a writer in complete sympathy with Coats, Limited, gives an idea of the past and present wage levels in the thread mills of that town:

"Shakespeare says that

"Some are born great, some achieve greatness,
And some have greatness thrust upon them.

"The gift of cheap labor was thrust upon the thread manufacturers. They did nothing to produce this state of affairs, and, indeed, no doubt regretted it, but they had the wisdom to make the most of the position, to the great advantage of all concerned. One of the controlling causes, therefore, which made the business settle in Paisley in preference to other places, was the cheap labor thrown upon the market by the decay of the shawl trade.

"The mills of the Coats Combination in Paisley cover a hundred acres of ground. They possess an aggregate engine force of 30,000 h. p., requiring a daily consumption of 400 tons of coal, to drive half a million spindles; and they give employment directly to over 10,000 persons, while 30,000 may be taken as the total number of the employes of the

Combination in all countries. Of these the majority are girls and women, ranging from fourteen years of age to fifty or more. The bobbin turning and dyeing departments are staffed exclusively by males.

"The rate of pay is liberal. A girl who has just left school, at the age of fourteen, usually starts with a wage of about 6s. 6d. ($1.58) per week, advancing according to merit till 15s. ($3.64) per week is attained. Fifteen shillings may be taken as a fair average wage among the women; though, on the other hand, it has to be borne in mind there are others who receive as much as 36s. and 38s. per fortnight. ($4.37 to $4.62 per week.)

"The male operatives begin work at fourteen years of age, start with 7s. ($1.70) a week, and gradually rise till their wages equal those of good tradesmen.

"Work starts at 6 a. m. Breakfast from 9 to 10, dinner from 2 to 3, the labor of the day terminating at 6 p. m. The total working hours per week are 55 1/2."

Even after allowing for the shorter hours in Paisley these wages will seem low in Pawtucket, Newark and Willimantic. The difference in the British and the American cost of production is, however, known only to the thread companies. The remainder of the cost covers a number of items such as fuel, miscellaneous supplies, taxes and selling expenses, concerning the comparative cost of which in Great Britain and the United States we are at present unable to give any definite information.

Last month we applied to the Spool Cotton Co. for an explanation of the advance from five to six cents a spool and the reply received is of interest, although the problem has assumed a new phase because of the information received since regarding the retail price in Bradford:

New York, July 18, 1907.

Dear Sir:—

In reply to yours of 17th July have to say that it is difficult to explain further the reasons of our recent advance in the price of spool cotton without entering into details which would not be appreciated by the public.

Our letter of 27th June, as per copy enclosed herewith, states the principal items of increase in the cost of production. The increase in the cost of distribution of goods and of general conduct of our business has of course kept pace with the increases which have taken place in all kinds of business since 1899.

Yours very truly,
The Spool Cotton Company,
Theodore Frelinghuysen, Treas.

New York, June 27, 1907.

To Our Customers:

In answer to inquiries as to the reason why the prices of the various makes and grades of spool cotton sold by us have been recently advanced, we beg to inform our customers that such advance has been made because of the increase in the cost of manufacturing.

Since 1899, when the former price was adopted, the kind of cotton used in the spool cotton we sell has advanced in cost 134 per cent., labor per capita 24 per cent., coal 22 per cent., spools 41 per cent., and general supplies 119 per cent.

Under these circumstances we trust our customers will appreciate that the increase in our prices has not been unreasonable or arbitrary, and that it has been caused solely by the increased cost of manufacturing.

The Spool Cotton Company.

The following extract from "The Thread Industry" indicates that the cost of spools, as well as of raw material, can be practically eliminated from the problem:

"The consumption of bobbin wood is enormous, and threatened at one time the practical deforestation of Scotland. Pirnmill, in Arran, marks the site of a saw mill which denuded the west coast of Arran of its fairy garniture of scrubby ash and birch, and there were many such mills scattered over the West Highlands. Scotland still contributes its share, but the bulk of the wood now used in Paisley for the thread trade is imported from the north of Europe and from North America, and annually averages 15,000 tons, producing about 250 millions of spools—a remarkable change from the time when James Clark ordered the spools by half a gross at a time and carried them home in his coat pocket."

Mr. Blair is a free trader and it is but fair to give his explanation of the difference in price between Great Britain and America:

"Further, it may be said that the protective legislation of some foreign countries, not intended to benefit us, has done not a little to swell the profits of Messrs. Coats' shareholders. The chairman of the company in 1899 stated that they held shares in twelve manufacturing concerns in foreign countries, and by far the larger part of their entire profits was derived from investments in these companies, and not from mills in the United Kingdom. The explanation is simple. The selling price in these protective countries is maintained by the tariff at a high level expressly to benefit the local producer. This, in many cases, makes him easy about improving his methods. When, therefore, there comes upon the scene a manufacturer so thoroughly versed by long experience in all the economies of production as are the Messrs. Coats (the selling price being still kept up by the tariff), a very substantial margin of profit falls to his share. No doubt the foreign statesmen who enacted these tariffs did not intend to favor British enterprise at the expense of their own people, but that is not the only case in which hostile foreign tariffs have worked out so as to compel the foreigner to pay tribute to this country."

The tariff, as we have already shown, can be eliminated from the problem because the

difference between the British and the American price is three times the Dingley duty.

In this article we have endeavored as far as possible to confine ourselves to statements of fact and to leave statements of opinion to those speaking in behalf of the thread companies. But these facts and opinions still leave much to be desired and apparently reduce us to the following question:

Why is the price of cotton thread 3 cents a spool higher in Boston than in Bradford when the obstruction to free trade between the two cities in the form of a tariff is but 1 cent a spool, and the cost of raw material is the same in both Great Britain and the United States?

The two thread companies controlling the spool cotton production of both Great Britain and the United States not only can answer that question, but should answer it promptly. The American consumer has a right to an explanation. It would indeed be strange if a satisfactory reply was withheld by the officers of a company that receives this tribute from Matthew Blair, who has known them from his boyhood:

"The great combination grew naturally out of economic conditions, and far from being an injury to the community, it is a great benefit, and is in itself a most interesting object lesson, as showing in a very marked manner the success which always follows the application of integrity, enterprise and perfect organization.

"Possessed, at least in their later years, of 'wealth beyond the dreams of avarice,' money had no corroding influence on their gentle and benevolent natures. The early simplicity of their lives was never changed by the accession of material prosperity. Ostentation and extravagance had no attractions for them. The sole employment which they saw for surplus wealth, was to use it for the elevation of the people among whom their lot was cast. To do their duty faithfully and without display was their ideal. They

"'Did good by stealth and blushed to find it fame.'"

Labor Conditions in Indian Cotton Mills.

About two years ago the "Times of India" published a report of an investigation made by its representative among the cotton mills of India. The article described shocking abuses in the employment of women and children, and attracted much attention both in England and India. It was made the subject of discussion in Parliament and led the Indian government to appoint a committee of investigation whose report has recently been published. It is a practical confirmation of the charges made by the "Times." In many instances the mills are run from 5 a. m. to 9 p. m., including Sunday. In some of the establishments the report states that the children are divided into two gangs, one working from 6 a. m. to 9.30 a. m., and from 1 p. m. to 3.30 p. m.; the other from 9.30 a. m. to 3.30 p. m. and from 3.30 p. m. to 6 p. m. This is for seven days in the week and what education the children get is given at the mills between the working hours. In some mills no system is recognized, the children beginning work at 6 a. m., and not leaving the mills until the engine stops at night. The child is regarded as an adult at the age of twelve or fourteen. The commission reports that some were scheduled as adults although they were one to three years below the ages named. The legal minimum age for employment in Indian mills is nine years, and the committee recommended that this limit be raised.

It is the custom in nearly all departments of Indian mills for women to bring in children to work with them. The committee reports that the absolute prohibition of this custom would be a hardship to a number of Indian women who live in great poverty. They consider the greatest abuse is in operating the mills such long hours and recommend that a law be enacted regulating the hours of labor.

It is reported that the cotton industry of Austria-Hungary employs 118,200 persons, operating 3,699,000 spindles and 110,000 looms, and using 650,000 bales of cotton per year.

Australasia now has over 20,000,000 less sheep than in 1904, yet the amount of wool exported has increased very materially. The average clip, particularly in Australia, is nearly two pounds per head more than fourteen years ago, due to the improved class of sheep.

Tariff Revision and the German Agreement.

OPINIONS FROM THE TEXTILE TRADE.

We present below letters received from a number of representative men in the textile industry commenting on the letter on tariff revision in last month's issue from S. N. D. North, Director of the Census and Chairman of the Commission that negotiated the recent tariff agreement with Germany. Very appropriately the alphabetical arrangement brings a representative of the wool growers first, for it is only on a basis of adequate protection to the producers of the raw material that any tariff can or ought to stand. Mr. North's letter was addressed to the editor of this journal, and our reply appears below.

Wm. L. Black, wool grower, Fort McKavett, Texas:—A revision of the tariff as proposed by Mr. S. N. D. North would be a great misfortune if a reduction of 20 per cent. was made on wool, and I feel sure it would result in the same trouble we had in the '80s. A reduction of 20 per cent. would make the tariff on merino wool less than 9 cents a pound; if I remember right the tariff in the '80s was 10 cents.

It has been very clearly demonstrated in the past that our country cannot and will not undertake to produce wool under such a low tariff as 9 cents, and I am certain if such action is taken by Congress as Mr. North recommends it will result in a general stampede to get out of the sheep business, which will precipitate a panic. I can well remember the panic that occurred after the revision of the tariff in 1883, which dragged the value of sheep down from $5 per head to practically nothing. I purchased 8,000 head during this panic at 35 cents a head that the owner had paid $5 for. After the McKinley tariff of 1890 went into effect confidence was restored and prices advanced steadily to $3 a head, which was all lost a short time after Mr. Cleveland gave us free wool. Under the Dingley tariff we have made very satisfactory progress and I would be sorry to see any such action taken by Congress as Mr. North proposes.

Wm. Barbour, treas., Barbour Flax Spinning Co., Paterson, N. J.:—Acknowledging receipt of your favor of the 12t inst., I would say that, as the company I represent was never busier than we are at present, and we were never paying higher wages to our employes than they enjoy at this moment, I cannot endorse the sentiment in favor of a tariff revision. I have not forgotten the soup houses we were compelled to open in Paterson, N. J., under Mr. Cleveland's administration, and as you ask my opinion I cannot help telling you that I feel we should let well enough alone.

Charles Heber Clark, Philadelphia, Pa.:—After carefully reading the North letter, I have come to this conclusion—that, as the country is now highly prosperous, his plan is to begin a movement that will bring about hard times. If you will read his letter you will see that he practically confesses that to be the case. It is as if a well man should be so much dissatisfied with his health as to take a dose of disgusting medicine to make himself sick. I need not tell you that I am opposed to any such proceeding.

Gen. William F. Draper, Hopedale, Mass.:—I am not in sympathy with the alleged general public sentiment in favor of tariff revision. Troubles enough come to us, both as individuals and as a nation, without needlessly making them for ourselves.

Louis B. Goodall, treas., Goodall Worsted Co., Sanford, Me.:—I do not agree with Mr. North in making our present tariff the maximum. I am in favor of a dual tariff, but should have our present tariff the minimum. If our present tariff was reduced 20 per cent. it would stop the manufacture of a great many goods in this country. So far as we are concerned it would stop the making of some lines of fine goods which we are now able to make in competition with the foreigners; at a 20 per cent. reduction we could not compete. What would make it much more difficult would be the pernicious act lately passed by our government legalizing undervaluation by the Germans. We are in favor of letting well enough alone, and not disturbing the present tariff.

Wm. Maxwell, treas., The Springfield Mfg. Co., Rockville, Conn.:—We are not in favor of any revision in the tariff until it is positively necessary and we do not think that time is here yet. Some simple method like North's seems a good way out if revision is absolutely necessary.

G. C. Moses, Bath, Me.:—Your letter requesting my views regarding the suggestions of Mr. S. N. D. North on the subject of tariff revision, is received.

I give my individual opinions only, without by implication, those of the corporation by which I am employed.

I believe with Mr. North that "the revision when undertaken must be a revision downwards." Unless this is done in the near future I believe and fear that the revision will be in the hands of those who will give us a tariff not nearly so favorable as would result from immediate action.

It is evident, to many at least, that the present tariff in some of its schedules is too high for even a maximum. A percentage reduction, while it would relieve the subject from many difficulties, would yet, it seems to me, require some radical exceptions to correct some schedules which the development of manufacturing in this country since the Dingley law took effect have shown to be unduly high.

With proper exceptions the percentage reduction would be the ideal method of attaining the object. No sensible business man, be he manufacturer or otherwise, should desire a large reduction at any one time on account of its disturbing effect on all business. These disturbances are far reaching and not only affect manufacturers and their employes, but also the ever widening circle of all those with whom they have business relations.

There is also a special difficulty involved in our wool and woolen tariff on account of the tariff on wool being counterbalanced by the weight duty on goods. If, under a reciprocity arrangement, a reduction was made upon woolen goods and no such arrangements were made with wool growing countries, such as South America and Australia, the effect on the wool industry would be exceedingly disastrous.

A tariff commission is all right in theory if you can insure the political authorities at Washington giving legal effect to its recommendations. I recall the report of a commission of which David S. Wells was a member and well remember what became of their recommendations. I have therefore little faith in a commission serving any purpose but that of delay, and yet the make up of the commission and character of the report might possibly have such weight as to materially affect political action.

Chas. Porter, Jr., Park Mills, Philadelphia, Pa.:—Your letter of the 9th inst. received requesting my opinion of the scheme for revising the tariff, as outlined in a letter by S. N. D. North, Director of Census. It was my pleasure to attend the meeting of the Alumni Association of the Philadelphia Textile School and hear the address by Mr. North. Although I do not agree with him in his entire plan for tariff revision, I do most heartily agree with the plan of a permanent tariff commission. Such a commission composed of active, successful, prominent business men would do much to settle the unsettled conditions which always result from a proposed change of tariff.

C. A. Root, treas., The C. A. Root Co., Uxbridge, Mass.:—My personal views are that the country has prospered under our present tariff and I see no reason for a change. If the tariff is revised, it cannot help but affect the business of the country adversely, and I cannot conceive the necessity of such a revision.

W. S. Schuster, Schuster Woolen Co., East Douglas, Mass.:—I do not believe, with the existing conditions in this country today, that many people are especially interested in the discussion of tariff matters. There is no call for it from the people who work in mills or shops, or from the people who build and operate mills or shops. I believe they are content to let well enough alone.

Dwight Smith, Boston, Mass.:—We had better leave the tariff alone. When the tariff was revised under Cleveland it upset business from one end of the country to the other and did nobody any good. We had no sooner adjusted ourselves to new conditions than everything was stirred up again. I said then after the Dingley bill was passed that I hoped they would shoot the first man that began talking about changing the tariff again. It is a great deal as Speaker Cannon says. It will take about three years to get the business of the country adjusted to the new conditions and then we would find that the new law had just as many inconsistencies as the present one has. If the tariff is to be revised I say let the Democrats do it, and that will be the last we shall hear of the Democrats for another ten or twelve years.

Boston, Mass., July 25, 1907.

Mr. S. N. D. North, Director of the Census,
Washington, D. C.

Dear Sir: The basis of your scheme for tariff revision, as outlined in your letter of July 1, is found in this statement:

"I do not think there can exist any doubt, in the minds of disinterested students of public opinion, that this revision, when undertaken, must be a revision downwards."

Instead of considering the question as controlled by "public opinion," always unstable and as yet

unexpressed, let us consider it as affecting the public welfare.

INCREASED NECESSITY FOR PROTECTION.

The Dingley bill was passed to protect American labor against competition with cheap labor abroad. Since its passage there has been a large increase in wages in this country; for example, in Fall River cotton mills wages were based on 16 cents a cut on January 1, 1898, and today are based on 23.96 cents, an increase of 50 per cent. There is no evidence of anything like such an advance in any foreign country. What reason, then, have you for revising the Dingley tariff downward when the difference between wages here and abroad has been greatly increased and American labor is in proportionately greater need of protection?

What revision downward and bringing our manufacturers into competition with foreign conditions mean to this country you thus pictured in your report as secretary of the National Association of Wool Manufacturers in March, 1894:

"At the end of another year the secretary has to report the industry in the midst of a depression more profound and far-reaching than has ever before overtaken the country. More than one-half the machinery has been idle for six months or more; and the proportion of idle machinery is steadily increasing. The market, practically bare of goods, will absorb no more than suffices for a hand-to-mouth demand; the shrinkage in the value of stock and materials has been something appalling and unprecedented; and the immediate future offers no prospect of improvement in these disturbing conditions.

"A more complete and painful contrast in the conditions of any industry, in any country, was never known, than has distinguished the wool manufacture in the years 1892 and 1893. The losses incurred in this suspension of business and shrinkage of values mount up into the millions of dollars. The hardships that accompany them, through the non-employment of labor, beggar description.

"That the paralysis of the wool manufacture has been peculiarly intense and severe, as compared with other industries, is conceded. This fact can be accounted for in but one way: it is directly and wholly due to the threat of tariff revision."

You say you are "as good a protectionist as ever" you were, but facts are stubborn things and you should advise no step that might cause a repetition of the disaster of 1894, even if "public opinion demands it." And so I repeat: Give your reasons for lowering the Dingley tariff at a time when American labor is in greater need of its protection than ever before.

A SECRET ARRANGEMENT.

In your defense of the commercial agreement with Germany, negotiated by you and approved by the President and the Secretary of State, you refer to four objections as having been raised to it, but omit any mention of the most serious objection of all—the secrecy with which the agreement was made by our government. Requests for information by Congress and individuals were refused until after the agreement had been signed. Such methods are in conflict with the fundamental idea of a government by the people, and are all the more astonishing when compared with the policy adopted by the German government, which consulted with the Chambers of Commerce throughout the Empire, and obtained their approval of the agreement before submitting it to the Reichstag. How the President, the Secretary of State, and the members of your commission could calmly assume the responsibility of making changes in the administration of our tariff law without consultation with those vitally concerned passes comprehension. You denounce the "closed hearing" before appraisers, designed to detect fraudulent undervaluation, as the "American star chamber proceeding," by which "men are deprived of their property without due process of law," and yet have no word of disapproval for secret negotiations with foreign countries by which the tariff law itself is changed. If your German agreement lowers the Dingley rates by weakening the Customs Administrative Act, have not the American people reason to complain that they have been deprived of protection without due process of law?

AN IMPREGNABLE POSITION.

You state that the object of the agreement was to "prevent a commercial war with Germany." The commerce threatened by that war is reported for the year ending June, 1906, as follows:

	Exports to Germany.	Imports from Germany.
Raw materials and foodstuffs	$205,021,822	$21,824,747
Manufactures	19,596,713	107,579,181
Unclassified	7,785,243	5,739,068
	$232,403,778	$135,142,996

More than seven-eighths of what we sell to Germany consists of food stuffs and raw materials that she must have and cannot get elsewhere. Nearly four-fifths of what Germany sells to us consists of manufactured products that we can easily make at home or buy elsewhere. Any threat of war on us under such conditions was ridiculous. To prevent a war was to render a great service to Germany alone. Did representatives of any country ever occupy a stronger natural position than that occupied by you on your arrival in Berlin last winter? To leave Berlin in triumph under such conditions would reflect no credit on American diplomacy; to

surrender any of our rights and advantages was unthinkable. Bearing this always in mind let us examine the agreement itself.

INDUSTRIAL CONDITIONS IN GERMANY.

Germany's concession to the United States consists in granting her minimum tariff rates on certain articles. This is of little if any value to the United States because Germany is protected against us by an abundance of cheap labor. The wage level in the German textile industry, for example, is shown by such items as this from the "Wochenberichte der Leipziger Monatschrift fuer Textil-Industrie" for April 24, 1907, and which can be multiplied indefinitely:

"Reichenbach, Germany. A new wage list has been prepared providing for 1.80 marks (43 cents) for adult workmen, but as it was not accepted, from 10,000 to 12,000 workmen will quit work on May 4."

And in the "Zeitschrift fuer die gesamte Textil-Industrie" of July 11, just two weeks ago, appears this item on labor troubles in the same district:

"The textile workers of Reichenbach, Silesia, have demanded a fixed price list and a 10-hour work day. The spinners and weavers employed by J. Rosenthal in Schweidnitz are out on strike. They demand an increase of 10 to 20 per cent. for piece work, a price by the hour of 30 pf. (7 1/4 cents) for men, and 20 pf. (4 3/4 cents) for women, and a reduction of one-half hour in the working time."

Such wages tell their own story of living conditions. While you were negotiating this German agreement at Berlin evidence was received of the extremities to which the German working population are forced and a part of it is presented here.

* Chemnitz. Der Verbrauch von Hunde- und Pferdefleisch nimmt hier gewaltig zu. Während im vergangenen Jahre die Zahl der Schlachtungen im allgemeinen um 1685 abgenommen hat, betrug sie bei Hunden und Pferden ein Mehr von 87 und 88. Geschlachtet wurden insgesamt im vergangenen Jahre 1070 Pferde und 698 Hunde.

The first exhibit is an item in the "Annaberger Wochenblatt" of January 20, this year, giving official statistics of the horses and dogs slaughtered for food at Chemnitz.

v. Ein „Hundeschlachthaus" in Kassel entdeckt. (Privatmeldung.) Ein Herr, dem sein wertvoller Boxer abhanden gekommen war, erhielt die Nachricht, daß sein Hund vermutlich von einem „am Graben" wohnenden Manne weggefangen worden sei. In Begleitung mehrerer Kriminalbeamter begab sich der bestohlene Hundebesitzer in die bezeichnete Wohnung und — was man hier fand, war recht eigentümlich. In zwei engen Räumen hausten hier vierzehn Personen beieinander. In der einen Stube fand man einen frischgeschlachteten und frischabgezogenen Jagdhund. Zahlreiche weitere Hundefelle deuteten darauf hin, daß schon eine ganze Anzahl anderer Hunde dem gleichen Schicksal verfallen war. Offenbar hat die Gesellschaft, die hier hauste, den Hundefang und die Hundeschlachtung gewohnheitsmäßig betrieben. Die Polizei nahm vier Verhaftungen vor. Den geflüchteten Boxer traf man noch lebend an.

The next is from the "Leipziger Nachrichten" of February 13, and shows that the official statistics do not include all the dogs killed in Germany for food.

Sie fragen:

Ist Roßfleisch ein Nahrungsmittel?

ist es gesund und auch wirklich nahrhaft? Wie verhält sich der Nährwert des Roßfleisches in bezug des Fleisches andrer Tiere? Sie erhalten die geradezu verblüffende Antwort:

Das Rossfleisch steht im Nährwert obenan! hat mehr Nährwert als das beste Ochsenfleisch, Hammelfleisch, Kalb- od. Schweinefleisch

Schweine-fleisch	Hammel-fleisch	Kalb-fleisch	Ochsen-fleisch	Roßfleisch
14,54 bis 20,25 %	16,62 bis 17,11 %	18,28 bis 19,86 %	16,75 bis 20,96 %	21,71 %

(Berechn. von Prof. König.)

Roßfleisch ist eins der besten, nahrhaftesten, dabei billigsten Nahrungsmittel!!!

Der stets steigende Konsum, im letzten Halbjahr wurden in Deutschland gegen

100000 Pferde geschlachtet,

im vorletzten Halbjahr 82000 Stück, beweist deutlich, daß mit dem vollständig unbegründeten Vorurteil gebrochen worden ist. Empfehle die

☛ besten Roßfleischwaren ☚

wirklich junge zarte Prima-Qualität, das Beste, was geboten werden kann, die feinsten, geschmackhaftesten Wurstwaren mit Schweinespeck; Spezialität: Harte ital. Salami, Cervelat, Mortadella, Wiener und Frankfurter Würstchen. Feinsten zarten, mit Wacholder geräucherten Schinken u. s. w. Um jedermann von der wirklich guten Qualität meiner Waren zu überzeugen, werde ich am Sonnabend, den 16. März

1000 Dosen hochfeinen, frischen ungar. Gulasch oder Lendenbraten

gratis verabreichen. Wer für 1.50 Mk. einkauft, erhält eine Dose!! im Werte von 50 Pf. Ich bitte das geehrte Publikum, von diesem Angebot recht fleißig Gebrauch zu machen.

A. Schindler, Chemnitz, nur Brühl 23

Rossschlächterei und Wurstfabrik mit elektr. Betrieb.

Telephon 3477. Filiale: nur Reitbahnstraße 17.

The third is an advertisement of horse flesh from the "Chemnitzer Tageblatt" of March 16.

I am informed on excellent authority that the eating of cats as well as horses and dogs is not regarded with any special abhorrence among the poorer classes of Germany.

It will not do to meet this evidence with the assertion that many in Germany earn more than 43 cents a day and do not eat horses, dogs or cats. That is not denied. The fact remains, however, that the supply of labor in Germany is so large as to force a considerable portion of the working population to accept the wages and submit to the living conditions here disclosed.

Contrast these industrial conditions with those in the United States where wages are the highest on record, and you have the reason why last year we sold only $971,647 of textile goods to Germany under her minimum tariff, while in the same time Germany sold $30,446,397 of textiles to the United States under our high tariff.

Germany's tariff was framed to protect German industry against countries having labor as cheap as or cheaper than her own. It is needed practically not at all for protection against the United States,

and that is why the concession of minimum German rates that you value so highly is illusory, and in reality no concession at all.

THE CUSTOMS ADMINISTRATIVE ACT.

In return for this fictitious concession of minimum rates you granted under this agreement what you term "certain ameliorations of American customs administration." At this point let us consider what American customs administration means to a protective tariff. Fortunately your own reports as secretary of the National Association of Wool Manufacturers give the desired information. Under date of December, 1890, you thus referred to the passage of the Customs Administrative Act, with pride in your own part in the work:

"The second legislative act upon which the Association is to be congratulated is known as the administrative customs law. The first agitation for this law originated with the National Association. The woolen industry has suffered more than any other from undervaluation, and it has, therefore, more to gain than any other in consequence of a law which promises to be effective in checking it."

In March, 1896, you had this to say regarding the necessity of a strict administration of customs under the ad valorem duties of the Wilson bill:

"The reason why the existing tariff is working so disastrously to the American wool manufacturer may be stated in one sentence: It is due to the substitution of purely ad valorem duties for the compound duties of previous laws. Some of its consequences may be summarized:

"1. Importations by consignment have steadily increased in consequence and the continuance of simple ad valorem duties will rapidly lead to a condition in which practically all the imports of manufactures will be consigned.

"2. It has facilitated the admission of woolens at valuations fixed with little regard to actual market values at the time and place of shipment.

"This is in consequence of ad valorem duties which no ingenuity in the framing of administrative laws has been able to adequately meet.

"These conditions have compelled private citizens to organize in self-defence; to employ their own agents to trace undervalued goods into the market; to gather the evidence that they are invoiced below market value; and force it upon the consideration of appraising officers; and to ask, urge, and demand that government officials shall enforce the law. The spectacle of private citizens organizing in this manner to protect themselves against the consequences of defective laws defectively administered is without parallel in any civilized government."

In September, 1897, you congratulated the Association on certain amendments designed to strengthen the Customs Administrative Act:

"Some things have been accomplished in the Dingley law which will certainly have a tendency to reduce the evil of undervaluation, providing always that the appraising officers of the government are disposed to do their duty under the law. Two changes have been made in the administrative act of 1890 which bear an important relation to the future of the domestic wool manufacturer. One of these is an amendment of section 11 of the administrative law, which now reads as follows: (Here is inserted section 11).

"Even more important than this is the provision allowing the domestic value of imported goods to be taken into consideration by the appraising officers in ascertaining the dutiable value of imported goods. We congratulate the members of the Association on the final triumph of a movement with which they have been so closely identified."

And at the same time you gave this opinion of foreign "market value:"

"The 'market value' of foreign goods is an illusive and nebulous thing, often impossible of ascertainment, especially where pains are taken, as is frequently the case, to suppress or conceal any such value in the country of production, on the ground that the particular grade or kind of goods is only made for the American market, or at least, has no market at home."

THE CONCESSIONS TO GERMANY.

Now, in 1907, you negotiate in secret an agreement with Germany which provides that the

"Market value as defined by the Customs Administrative Act, shall be construed to mean the export price whenever goods, wares and merchandise are sold wholly for export or sold in the home market only in limited quantities."

In other words, you prevent undervaluation by legalizing the German standard of value, and break down the law you helped to frame in 1890 and 1897. That this is a fair interpretation of the agreement not only follows from your own reports, but is the judgment of men in the best position to know, the leading direct importers of the country, and from whose protest against your German agreement the following extract is taken:

"The change from 'market value' to 'export price' contemplated in the commercial agreement is a radical one. It will not suffice to answer that the recognition of the 'export price' by our appraisers acting under this agreement will only refer to merchandise sold wholly for export, or sold in the home market only in limited quantities. The policy of the German market has been to consign its goods, and in the furtherance of this policy it has refused to sell outright to our merchants; when they have offered to buy they have been told that the German merchants preferred to sell the goods through their own agents in this country, duty paid. Does it require any keen insight into the practices prevailing in the German market to understand why its merchants prefer to sell duty paid rather than direct?

"We shall be made a market for the consigned produce of foreign nations, American merchants will be driven from business, and American manufacturers will also suffer."

DUMPING GERMAN GOODS.

You contend that the German "export price" will not encourage "dumping" because "it is not to be presumed that any manufacturer will deliberately make goods for the express purpose of selling them at a loss or without a profit." Experience is against you here. Under the free wool Wilson bill there were few manufacturers who were not eager to sell without a profit or at a loss, in order to avoid the heavier loss that would result from shutting down their mills and a scattering of their help. Not only will German manufacturers dump their goods in the United States at a loss or without a profit if forced by trade conditions, but they will use all their ability and ingenuity to dump them here at a profit by making them "wholly for export" and consigning them to agents at the "export price" you have authorized.

ALL OF A KIND.

All the other concessions to Germany by the United States are designed to weaken the Customs Administrative Act. The agreement dispenses with a statement of cost with each shipment although the cost of manufacturing goods varies not only from year to year, but from hour to hour. It concedes the "open hearing," although those with most experience in detecting fraudulent undervaluations believe secrecy is essential in that work. It abolishes the safeguard of personal appearance before consuls, and requires that all United States Treasury agents sent to Germany to detect fraudulent undervaluations shall be personae gratae to the Berlin government and shall co-operate with the German chambers of commerce, whose object is to promote German commerce and German interests.

OPINION AND EXPERIENCE.

The fundamental error of your defense and explanation of this German agreement is that it places opinion above experience. You virtually ask that the opinion of the President, the Secretary of State and yourself be accepted in preference to the experience of the trade, voiced by you from 1890 to 1903, and by the leading merchants engaged in the direct German trade at the present time.

"DEUTSCHLAND UEBER ALLES."

If we judge by experience instead of accepting opinion there is no escape from the conclusion that this agreement consists of an illusory concession of tariff rates on Germany's part, and a surrender of important safeguards to protection on ours. While it excites amazement and humiliation on the part of Americans it is for Germans the logical outcome of a settled policy that has but one object in view. In negotiating and ratifying this agreement the German representatives were merely following the instructions given by Frederick the Great to his nephew and successor, and which now find expression in the German watchword, "Deutschland ueber Alles."

Yours very truly,

Samuel S. Dale.

PROFITS IN LANCASHIRE.

The prosperity of the English cotton spinning industry is portrayed in the Manchester "Guardian" in the following words:

The current dividend announcements of Lancashire cotton spinning companies are far from fully representing the recent prosperity of the mills. Many of the most successful mills are owned by private companies which do not publish accounts, and the public seldom obtains an adequate idea of the profits made by these concerns. One private company not fifty miles from Oldham is now erecting the third mill built and equipped out of profits in the last few years. Even in the case of the spinning companies that publish accounts the net profit is usually made, by one device or another, to look as small as possible. One Middleton company has declared a 40 per cent. dividend, but the general policy adopted is not to declare a larger dividend than 10 per cent. and to conceal the rest of the profit in some form of "secret reserve." Besides setting aside large sums to "contingency fund," "reserve for renewals," "dividend reserve," and similar accounts, some spinning companies rapidly depreciate their machinery until it appears in the books at little more than scrap value. One Lancashire mill during March was reported to have bought in sufficient coal to last the year, and oil and other stores in the same proportion. These tactics are adopted both to prevent the market from being spoiled by a sudden rush of outside capital and to equalize profits available for dividend in fat years and lean years.

Numerous rose-colored accounts of the present state of the cotton trade, similar to this, have brought out protests from the mill owners, which indicate that they are quite willing the public should remain in ignorance of the enormous profits from converting American cotton into cotton yarn. The truth will not down, and it is being generally accepted that the profits of European cotton spinners are far above the largest on record.

The total value of the cotton goods manufactures imported into the United States in 1906 amounted to $68,911,371.

SIZES AND PRICES OF KNIT UNDERWEAR.

New York, July 29, 1907.

Editor Textile World Record:

I would like to make two suggestions, one to the manufacturers of children's cotton fleeces and ribs, and another to the manufacturers of ladies' 25c. ribbed goods, in reference to marketing their production at prices based on the different sizes.

Last season several manufacturers of children's goods took a step in the right direction by making a graduated price on boys' fleeces, according to sizes. This has resulted in doing away with much of the annoyance experienced in former years by buyers taking assortments that were heavy on the sizes 30, 32 and 34; but these manufacturers did not go far enough. For instance, they sold the boys' fleeces for 1908 at $1.77 1/2 for size 24 with a rise of 12 1/2c., and continued to sell the children's line in sizes from 16 to 34 at $1.00 for size 16, rise 25c., less 15 per cent., which gives us these figures:

	16	18	20	22	24	26	28	30	32	34
Boys' Line	....	....	....	....	1.77½	1.90	2.02½	2.15	2.27½	2.40
Children's Line	.85	1.06¼	1.27½	1.48¾	1.70	1.91¼	2.12½	2.33¾	2.55	2.76¼

The result of this is that the retailers have bought sizes 16 to 26 from the children's line and the larger sizes from the boys' line. Now manufacturers will not accept orders on the children's goods in sizes 16 to 26 at the same price at which they will sell sizes running from 16 to 34. The jobber has the difficulty of trying to keep his travelers straight on the matter and his customers pleased, and also have the manufacturers accept his orders. Our suggestion is, to put a straight rise and fall price on the line, running from 16 to 34 that will be high enough on the small sizes to pay a profit, so that the manufacturer will be as willing to sell a case of sizes 22, 24 and 26 as he would a case of 30, 32 and 34. A buyer could then send an order to the mill for any scale of sizes desired and know what he would have to pay for it, without waiting for the manufacturer to figure it out. This would also be advantageous, in that it would be necessary to carry only one instead of two lines. We think if the price were made $1.25, or even $1.50 for size 16, rise 12 1/2c., it would be more acceptable to all than the two sets of prices mentioned above.

The jobber is also in trouble when it comes to marking prices on ladies' 25-cent ribbed goods. Nearly all the manufacturers of this class of goods in New York State have a gentlemen's agreement, whereby they have a price for cases in an assortment of sizes on the basis of 8 dozen size 4, 16 dozen size 5, 16 dozen size 6, with an advance of 5 cents per dozen for cases without any size 4 and with equal quantities of sizes 5 and 6, and 10 cents advance for cases of all size 6. Our idea is to have a separate price on each size, regardless of the quantity. The plan now in use might work fairly satisfactory with manufacturers where case lots only are taken into consideration, and where there are so few makers of this class of merchandise. When, however, a jobber marks his prices on the same basis, he has the difficulty of pleasing the man who wants 2 dozen size 5 and 4 dozen size 6, or 3 dozen size 5 and 7 dozen size 6, etc.; and of filling duplicate orders for special scale of sizes for the customer who has had a case at a round price and now wants 4 dozen size 6 to assort up his stock.

This season the price for regular case assortment has been $2.00 for 6-pound goods, $2.05 for cases of sizes 5 and 6, and $2.10 for all size 6. We believe that the price of $1.97 1/2 on size 4 with a rise of 5c. would be more satisfactory to all concerned.

It may be that there are some difficulties in the way of carrying out these suggestions that the writer is not aware of, but at any rate, I would be pleased to hear from some manufacturers concerning the matter.

Yours truly,

Jobber.

Of the world's cotton spindles in August, 1906, aggregating 120,090,595, the United Kingdom had 48,826,144, the United States 25,250,096, and Germany 9,730,209.

AN AMERICAN ON THE MANCHESTER SHIP CANAL.

From "My Visit to Europe" by Harvie Jordan, President of the Southern Cotton Association.

On June 14, Mr. Walter Clark and myself visited the large warehouses of the Manchester Ship Canal Company, by courtesy of a special invitation from the president of the company, Mr. Robinson. We were attended on this tour of inspection also by Mr. W. H. Macalister, one of the largest and most successful Manchester spinners. The Manchester Ship Canal Company is a corporation which was organized by the Manchester spinners for the purpose of building a ship canal from Liverpool to Manchester, a distance of about thirty miles, in order to secure the shipment of cotton direct to Manchester and avoid the rehandling of cotton at Liverpool and to escape the domination of the Liverpool cotton merchants. The canal was completed at a cost of about forty million dollars, is one hundred feet wide and twenty-four feet deep. Vessels of large tonnage come through the canal and tie up at the Manchester docks from all parts of the world, unloading cargoes of all kinds of products aside from cotton.

The company have equipped the dock-yards with a splendid network system of railways and sidings, and built the largest and most up-to-date warehouses in the world. They have one continuous stretch of warehouses, built to receive cotton, nearly a mile long, four stories high, and constructed entirely of re-enforced concrete. There is not a stick of timber in the whole building, and the structure is absolutely fire-proof.

"COUNTRY DAMAGED."

In going through this mammoth building, which fronts on the canal, and while examining American cotton in comparison with cotton received from other countries, we were finally shown into one of the large rooms, some two hundred feet square, where quite a number of bales of American cotton was being stripped of the bagging and ties by a good force of hands, and the outside lint of the bales being taken off and deposited in piles near each bale. As this was an unusual and unexpected sight to see, so far away from home, we asked Mr. Robinson what this new feature was.

He replied, in substance, that we were then standing in a room specially set aside for so-called "country damaged" American cotton, where every bale of cotton shipped to Manchester from America showing any damage whatever to the lint, was delivered and picked, and the arbitrations of losses between interested parties adjusted.

A CHUNK OF ROT.

The first bale we came to was just having the bagging taken off, and as the naked bale of lint lay there on the floor we saw at a glance that one entire end of the bale, fully two feet deep, was a solid chunk of rot, and looked more like compressed paper pulp than it did like lint cotton. The sides, bottom and top of this bale were damaged and totally unfit for spinning purposes to a depth of at least five inches. In reply to our inquiry the statement was promptly made that fully 200 pounds of this bale would be lost for spinning purposes. We saw numbers of other bales lying about the room, some being picked, others where the process had been completed, and beside each bale a large pile of rotten lint. The average losses on this special lot which came under our observation would range from fifty to two hundred pounds to the bale. It was a sight to make the heart of a Southerner grow sick to see in a foreign country our valuable staple commodity being picked and thousands of pounds being thrown aside as useless and unfit for commercial purposes.

We asked from what point in the Southern States this badly damaged cotton came, and the two gentlemen having us in charge took us downstairs to the point where the bales were being unloaded. Here we found on the railroad track, running alongside the warehouse, ten flat cars loaded high with cotton bales, all of which had been consigned to the picking-room as damaged cotton for settlement by arbitration on claims for damages.

Examining some of the tickets attached to the bales we soon ascertained that this lot of cotton was shipped from Memphis, Tenn.,

by a large cotton firm of that city. We were not very much surprised to find that cotton going to Europe from Memphis was in a badly damaged condition, as it was a notorious fact to both of us that during the past winter thousands of bales of cotton had been stored for months in the gutters of the streets of Memphis and allowed to lie there in the mud and water, not only to damage and rot, but also to endanger the health of the people of that city. I went to Memphis last winter, and after seeing the fearful condition in which cotton was handled there, wrote an article describing the situation fully, which was published in "The Cotton Journal" and I found pamphlets in Europe containing the same article, reproduced, being freely distributed among spinners in that country. Just how Memphis can maintain her prestige as a great interior cotton centre unless her cotton factors furnish proper storage facilities, it is hard to understand, as all of these heavy losses on damaged cotton, whether at Memphis or other large storage points, are borne by the farmers, and in such a way as I shall fully explain later on in this article.

THE FARMER IS NOT TO BLAME.

If the farmers were responsible for these damaged bales through their neglect, they could have no cause for complaint, but in nearly all instances our cotton is allowed to damage after it has left the farmers' hands, whether to be stored and held or for immediate sale. When farmers do sell cotton which has been damaged by their neglect, such bales are picked at the local warehouses, and the damages promptly adjusted between the local buyer and the seller. But in Europe we find thousands of bales delivered at foreign ports from American exporters where the cotton has to be picked and the matter of damages settled by fixed rules of arbitration.

We knew somebody had to stand for this great and unpardonable neglect in the final handling of American cotton, and determined to probe the whole matter to the bottom. As the farmers were not responsible, and cotton does not now damage while stored in the steel bottoms of the vessels, we wanted to know who was responsible and who stood the losses. We think it has been clearly shown that the damage occurs at large concentrating points in the South where inadequate storage facilities exist and the cotton is stored in open yards or on the streets.

INSURANCE COMPANIES PAY THE ENGLISH BUYERS.

Mr. Clark put the first question of interrogation to President Robinson, by asking who stood the losses on this damaged cotton. His reply came promptly that the Marine Insurance Companies paid the exporters of such cotton in America the full market value of all that was thrown aside as damaged, and that the spinners who accepted the good portions of the bales paid the balance, the rotten cotton going to the insurance companies as their salvage.

We were absolutely astounded at this revelation; as stated before, we knew that when farmers left their cotton lying around their homes unprotected, and it was damaged, they had to stand the loss by heavy deductions in weight and price when such cotton was sold to the local buyers, and naturally we presumed the same rule applied to the exporters and handlers, or the middlemen between the farmers and spinners, and through whose negligence the cotton was damaged after it left the hands of the growers. But here we were confronted with the singular proposition that the middlemen had been shrewd enough to safeguard themselves through the marine insurance companies, sustaining no losses themselves and, in the end, fastening the burden of the whole business on the backs of the innocent and unsuspecting cotton growers of the South. How this scheme is worked I will now explain, as I have it openly and candidly admitted from the heads of the big insurance companies.

Following Mr. Clark's query, and the reply of President Robinson, I stated that it was important that we have a conference with the leading marine insurance companies at Liverpool at the earliest possible moment, as this was a matter of very grave importance to Southern cotton growers. Mr. Mac-

alister, as a spinner deeply interested in every matter looking to improving the delivery of American cotton in England, very kindly consented to send telegrams that afternoon to Liverpool to several managers of marine insurance companies and arrange for a conference with them between Mr. Clark and myself the next morning. The following day Mr. Macalister accompanied us to Liverpool, and at eleven o'clock we were met in one of the large insurance company's offices by several managers who handled insurance on American cotton.

Without delay we presented the situation as we had found it at Manchester, as above described, and asked these insurance managers if it was true, as reported to us, that the insurance companies paid full market value for all the damaged cotton shipped by American exporters to Europe. Their answer was prompt that they did pay for such cotton, as had been stated to us, and that the arbitrations and adjudications of these numerous claims on account of "country damage," as applied to American cotton, gave the insurance companies much trouble.

We then asked, why it was that they would insure damaged cotton in America, or pay for such damaged cotton without recourse on those who neglected to properly house the cotton and protect it from the weather.

In reply they stated that in the adjustment of these claims affidavits were submitted by the exporters to the effect that the cotton was sound and in good condition when insured, and became damaged after the policies covering same were in force. They stated, further, that it was impracticable for a large number of insurance companies doing business in American cotton to keep a horde of inspectors at concentrating points in the South to inspect each bale, or to see whether it was properly protected from the weather. That they issued what was termed, "floating" policies, covering certain qualities of cotton, and that as fast as this cotton was bought it was immediately covered by insurance against damage by weather, fire, etc., no matter where the cotton was stored or located. That they found it best to pay these claims without trying to handle the business in a detailed way of intricate inspection.

THE FARMERS PAY THE INSURANCE COMPANIES.

We then asked how the insurance companies could afford to pay these heavy losses without detriment to the net earnings of their business. Their reply was that they fixed the premium rate of insurance on American cotton very high, and high enough to fully counterbalance all losses which they would have to sustain from the "country damage" clause. Knowing that somebody, somewhere, connected with the cotton industry, had to stand the charges for this extra high rate of insurance, which did not apply to cotton from other countries, we asked the pointed question as to who stood the burden.

The reply was quick and without equivocation, that insurance was one of the legitimate fixed charges against cotton, the same as freight or storage, and as such, it became a fixed charge against the price paid for the cotton, and that the cotton growers had it deducted in the price offered them for their cotton. I had felt, from the first, that this would be the final outcome as a result of this special line of investigation, and was in no wise surprised to hear the statement that Southern farmers had to lose so heavily on this particular feature of cotton handling, although they were in no wise responsible for conditions which had forced the marine insurance companies to levy such high rates against American cotton. Here, then, is the situation:

DAMAGED IN EVERY STATE.

The large handlers of our cotton at principal concentrating points in the South can buy up the crop, store the cotton in street gutters, or leave it in the mud exposed to all sorts of weather, and if the cotton is damaged when it reaches the spinners the claims are adjusted and paid in full by the insurance companies, while the buyers on this side deduct enough from the price offered the growers to offset the high rate premiums charged the buyers by the insurance companies. While Memphis has, perhaps, shipped more damaged cotton to Europe than any

other city in the South this winter, still Memphis is not alone to blame for all the damaged cotton which annually goes abroad from this country. There is not a state in the South but where concentrating points can be found where, for lack of proper storage facilities, hundreds of thousands of bales of cotton are annually stored on the ground, without shelter, and in the streets of the cities. The term of "country damage," which might have held good some years ago, should now be changed to "city damage."

THE ATLANTA CONFERENCE.

This matter, as the result of our investigations, proved to be a subject of such vital importance to the handling of American cotton that I extended invitations to the representatives of the marine insurance companies I met in Liverpool, to attend the coming International Cotton Conference between growers and spinners, to be held at Atlanta, Ga., October 7th, 8th, and 9th, next. The invitation was accepted, and a promise made that a representative of the marine insurance companies would be present at the conference. The insurance companies would be glad to see the evil of "country damage" in cotton done away with. It gives them a great deal of trouble, and the spinners, especially, have to suffer from the evil effects of damaged cotton and the adjustment of all claims arising therefrom. I think that if all parties at interest will come together and take up this matter of "country damage," and devise ways and means of forcing damages on those responsible for damaged cotton because of neglect in providing proper storage facilities, in the future we will have less of this trouble to contend with. Unquestionably, it is manifestly unfair to make the cotton growers of the South stand for these heavy damages through the assessment of a high rate of insurance, when they are in no wise responsible. If the farmers will develop the right kind of backbone they will begin to take steps that will relieve them of this kind of graft.

It is bad enough to be compelled to pay monthly storage on cotton lying out in the streets, but when it comes to being forced to pay the losses occasioned by such negligence on the part of cotton factors, warehousemen and exporters, it is high time to call a halt.

MAN AND MACHINERY.

BY HENRY P. GREG.

(Before the Conference of Managers of Textile Works, Manchester, Eng.)

(Continued from July.)

On the other hand, the cost of machinery in interest and depreciation is constantly decreasing, so that labor-saving appliances, that at first cost show but little saving, may, five years hence, prove a very profitable investment. There is a further advantage in adopting lavor-saving appliances. You are compelled to go round stringing everything up, tightening all loose nuts, and eliminating defects. This costs nothing. It merely means more attention to detail. Indeed, it costs less to run a mill well than to run it badly.

Now given that you have reduced your breakages to a minimum and that you have all possible labor-saving devices and machinery, you want freedom to organize the work-people to the best advantage. And this brings me to consider the influence trade unions have on this question. Today we watch, study, and examine, not the individual, but the collection of individuals, the trade union. You may grant this point, but claim that it has been inevitable, that the growth of trade unionism is natural, convenient, desirable, a process wisely acknowledged and welcomed by employers, a means whereby strikes and lockouts are avoided and misunderstandings cleared away.

I have great admiration for trade unionism, and especially for the leaders of the trade union movement in the cotton trade, who have done a great work for the operatives. But the growth of power of trade unionism has been due to no inevitable cause, but to the fact that employers have devoted their time and attention to machinery and not to man, have attended to the voice of a collection of individuals, and not to the voice of the individual, and have not realized how much wiser it is to remedy a

grievance before rather than after the intervention of the trade union secretary. This power has become so great as to affect the trade in many ways prejudicially. The blame rests not with the operatives but with the masters, and the remedy lies not with the operatives but with the masters. Let us examine the position held by trade unionists. Broadly they claim to see that the operatives are not over-worked nor under-paid. Their motto is: "A fair day's wage for a fair day's work." This is admirable, and no one would complain if they did what they claim. But do they do what they claim? No, certainly not. Their demand is that the operatives shall be paid a standard rate of wages —a wholly different proposition!

To make this clear I will suppose a perhaps slightly exaggerated example in winding ring yarn from the ring bobbin. The Blackburn rate works out at .3125d. per pound for winding 30's, and a winder doing 800 pounds a week earns 20s. 10d., but if the work is bad she may only get through 600 pounds and earn 15s. 7 1/2d. This may go on for some time without a word from the trade union secretary. But suppose the winding frame is slowed and the winder is given 100 spindles instead of 40, and those 100 spindles are all in one line and the winder turns off 1,800 pounds a week instead of 800 pounds, and the master fixes the rate at .15d. per pound, and the winder earns 22s. 6d. per week, and suppose that this is done by no extra exertion on the part of the winder, but is entirely due to the reduced number of breakages,—the trade union secretary is up first thing next morning. Now, can anyone deny that this example, perhaps slightly exaggerated, truthfully represents the spirit in which trade unionists approach all questions of work and wages?

If this is so, what right have they to claim as their special motto a fair day's wage for a fair day's work, and why should the masters fall in with such a claim? But the masters glory in the fixing of these rates, and say that they are so splendid that they want them to be fixed in some automatic fashion, which they call a sliding scale.

As though not content with forging their own fetters they must take special pride in seeing that the fetters are forged out of the most enduring form of steel! What folly, and what has it to do with a fair day's wage or a fair day's work? If conditions were the same at the end as the beginning, if there was no such thing as progress, perhaps a standard rate of wages might be excellent. But progress is a law of life, stagnation is death, and we want to deal with life, not death.

Can I drive my point home more clearly by examining the position of the mule spinners and weavers and the ring spinners and card-room hand operatives today as against what it was twenty years ago? The mule spinners and the weavers have had strong unions of which we do not complain, but they have had most elaborate standard rates of wages. A vast variety of conditions are provided for, counts, number of spindles, speed, twist, etc., in the one case, counts, reed, pick, etc., in the other, and within these limits a master has a certain amount of liberty; outside, none. Now these limits twenty years ago may have been wide enough, but however wide the limits may be, you are better without them. Remember they have nothing to do with a fair day's wage or a fair day's work.

What has been the result of these elaborate standard rates of wages, so elaborate that it almost requires an expert to make out a pay-sheet? The wages of mule spinners and weavers have remained comparatively stationary, and their work is greater. The master has had only one way of reducing his cost, and that has been by speeding up his machinery, a process that never means less work to the operative. When he has attempted to reduce his cost by any other method, such as supplying cleaners and oilers of looms, cloth carriers, etc., in the weave shed, such an alteration has affected the standard rates of wages, and the opposition has been so great that in nearly every case such methods have been abandoned. And this opposition is bad not only when active, but more, perhaps, when passive: that is to say, it deters the majority of masters from making the attempt to improve their methods of production. In the card-room and ring-room there have been trade

unions, and some strong trade unions, but no such elaborate and standard rate of wages, and the result has been that in the card-room and ring-room today the wages are far higher, the work probably rather less, and the cost of production far lower than 20 years ago. This is easily explained. Take a ring frame; it is easier to tent 1,200 spindles with 20 ends down per hour than 600 spindles with 60 ends down per hour.

I believe in high wages and a low cost of production, but I find a standard rate of wages hinders me in both directions. While I regard the action of the operatives as short-sighted, I am alarmed to see the zest that the Masters' Federation have thrown recently into the work of elaborating a standard rate of wages in the card-room. For progress there must be liberty of organization, and until the Masters' Federation and the trade union officials realize this we shall be fighting for the markets of the world blindfolded.

I have spoken clearly, but an intimate knowledge of the cotton trade, especially in this country and in America, has forced me to thus clearly state the case as it appears to me. The leaders of the masters and the leaders of the men should meet to discuss a scheme for the prevention of over-working or of under-paying, not for the formulation of standard rates of wages.

It should be possible to form a small committee of four, two from the masters and two from the men, with power to call in an umpire, who could investigate on the spot all questions of over-working. It is not hard to see if an operative is, or operatives are, overworked, and I think it would be as easy to arrange that they should not be under-paid. Masters and men might agree upon some minimum for the different departments in a mill. There is no need to fix a standard rate of wages, and any standard you may fix is wrong, so long as the most important factor in the question is ignored, namely, the quality of the material in process.

Perhaps you now grant that the human is of far greater importance than the mechanical aspect of a cotton mill in the problem of reducing cost today. But how are we to proceed? Well, there must be a lot of clear thinking and plain speaking on this question of standard rate of wages. Masters and managers must understand that little or no progress can be made until mutual good faith is established. The operatives must understand that the masters do not want to reduce wages, but the rate of wages, and that this is necessary if this country is to keep her position in the markets of the world.

We are having a time of great prosperity. This will be followed by a time of great overproduction and adversity, unless the present prosperity is properly utilized. Prosperity ruins more firms than adversity, as in the former times the temptation to rest on the oars is too great, while in the latter the keen edge of competition banishes complacency and carelessness out of mill management. Now is the time to put your house in order —now or never. Now is the time to avoid failure. When bad times arrive, then it is often too late.

Our position today seems impregnable. Is it really so? What would happen to the Lancashire cotton trade if we lost the China market? Yet two nations have already got a firm footing there. Thanks to our Free Trade policy, we are still supreme, but Free Trade alone cannot keep us so. In the United States the mills cost about double what ours do to erect and equip, and the wages are higher, but the wage cost is lower, so much so as to almost offset the higher capital charges and the higher wages. This question of reducing our wage cost is one of life and death to us. If we only realize the importance of getting the utmost out of each operative, I do not fear American competition; if we go on fettering ourselves with standard rates of wages I do fear it most tremendously. Japanese competition may for a time hit us very hard indeed, but I anticipate there a very rapid rise in the wages paid to the operatives and a great reduction in the hours worked.

If I were to go through a cotton mill pointing out all places where I think it possible to reduce the wage cost, i. e., by getting a greater production per operative, my address would assume too lengthy proportions; besides, it is far better for you to think this

question out each for himself, so as to utilize to the uttermost the conditions prevalent in his mill. But I may mention two principles. The first is to avoid breakages as far as ever possible, and this is often achieved by reducing the present speeds; and the second is to organize the work so that each operative performs as few operations as possible, that is as much repetition work as possible and so that each operative may be neither over nor under worked. Many suggestions for looking better after the comfort of the operative and so increasing the mutual good-will between master and man will be found in Budgett Meakin's excellent book entitled "Model Factories and Villages," which I recommend you all to get and study. Study also American methods, where their high wages and shifting industrial population have compelled an attention to organization and labor saving appliances unknown in this country. Do not trouble your heads with those points where we are ahead of them, and they are many, but examine with closest attention those points where they are ahead of us and see if you cannot get some useful hints in the management of the concerns under you.

BRITISH COLONIAL COTTON.

The growing of cotton in the British colonies has at last emerged from the condition of promise and prophecy into that of accomplished fact. The arrival of a cargo of 721 bales of South African cotton at Liverpool last month was an event of unusual interest, not only because of the evidence it furnished that real cotton in substantial quantities was being grown in the colonies, but because of the contrast between the condition in which the bales reached Liverpool, and that in which American cotton arrives in the same port. We take from the "Guardian" the illustration of 400 of these bales piled on the Liverpool docks. Our readers are so familiar with the ragged condition of the American bale as to make it unnecessary to call attention to the neat and compact bales from West Africa. The su-

COTTON BALES FROM SOUTH AFRICA.

periority of the latter is the feature of greatest importance to Americans in connection with this cargo. If the example set by the West African cotton growers in baling cotton should spur Americans to reform our present disgraceful methods that alone would amply compensate for the effort and money expended by the British Cotton Growing Association.

A correspondent in the "Guardian," referring to the arrival of the cargo of cotton from West Africa, gave a glowing account of the progress of colonial cotton growing. Six thousand bales of the Sea Island grade, valued at $1,000,000, will come from the West Indies this year. The Lagos crop is scheduled in 400-pound bales as follows:

1903	500 bales
1904	2,000 bales
1905	3,200 bales
1906	6,000 bales

This year's crop is estimated at 12,000 to 20,000 bales.

WATER DRIVEN RING FRAMES.

A constant and large supply of water from the mountains of northern Italy has led one firm of cotton manufacturers, Cotonificio Feltrinelli & Co., at Campione, on the edge

FIG. 1.

of Lake Garda, Italy, to install a series of turbine water wheels connected direct to their 68 Brooks and Doxey ring spinning frames. These frames have 416 spindles each, 2 1/2-inch gauge, 1 1/2-inch ring. The water has a fall of about 380 feet from the top of the cliffs near the mill and is conducted through a pipe 32 inches in diameter to the mill. In the mill the pipe is run under the main alley and opposite each frame a branch pipe leads to the turbine.

The water wheels were built at Vevey,

Switzerland, and have a theoretical capacity of 6 1/2 h. p. and an actual capacity of 4 1/2 h. p. when running 900 r. p. m., with a water pressure of 168 pounds to the square inch. Under these conditions each turbine consumes 9 1/4 pounds of water per second.

This water wheel drive was installed during the past year and while no report has yet been authorized by the owner of the mill, it is understood that the drive has many advantages and is giving general satisfaction. The speed of the frame is easily varied between 6,500 and 11,000 r. p. m. by regulating the supply of water to the wheel by means of the valve shown in Fig. 2. This is a great advantage not only in adjusting the frames for different kinds of work, but also when starting and stopping them. Each frame is supplied with an indicator which shows the speed of the spindle and enables the overseer to regulate the water supply accordingly. It is stated that the cost of the installation, including the turbines, foundation, and piping, was about $145 per frame.

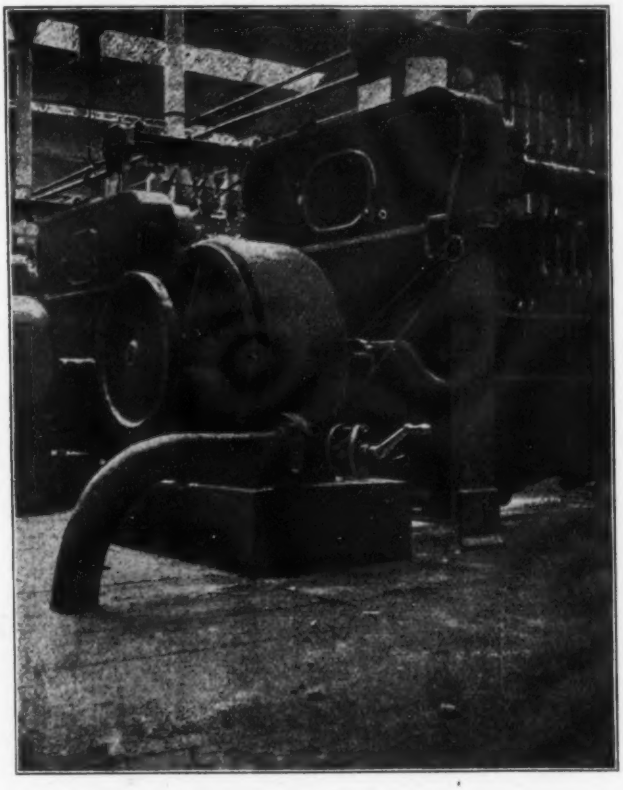


FIG. 2.

This method of driving frames is of course adapted only for special conditions of water pressure and supply.

AMERICAN COTTON MANUFACTURERS' ASSOCIATION.

At the meeting of the Board of Governors of this association last month it was decided to hold the next annual meeting in May, 1908, at the Jefferson Hotel, Richmond, Va. This point is very convenient for both Northern and Southern visitors and will doubtless result in a large and representative gathering.

PLACARDS IN ENGLISH MILLS.

BY ARTHUR STONE.

One of the chief respects in which British mills differ from American is in the permanence of staffs. Year after year the British operator works in the same mill. All his life, unless fire, failure or calamity drives him a-field, he works in one locality. There is no such thing in England as an entire change of help once or twice a year and consequently there is not much need here of government by proclamation. The mill force is, to a greater degree than in America, one family. Strangers—"foreigners" they call them in the mill-villages—are rare. Man knows what he has to do, and what he has not to do, without many printed notices to remind him. Visitors to Americanized works, like those of the Westinghouse Company in Manchester, find a fund of amusement in the peremptory cautions which decorate the Westinghouse walls and doors. The "Stop," "Pass Along," "Hands Off" and "Hurry" placards have few equivalents of English origin and none so curt and commanding.

Again, few English employers think fit to issue to their help such moral precepts as those for which Marshall Field is famous. Confidential circulars pass to managers and overlookers in very large works and some are heard of which show an American originality. But not often are these used in textile mills, in which verbal instructions are generally trusted. Notices there certainly are exhibited inside and outside mill premises and that which is most familiar is unquestionably the "No Admittance Except on Business" which is occasionally rendered with stronger emphasis. Dr. Arthur Shadwell made investigations which led him to remark: "To this day spinners and combers are the most jealous of all manufacturers except chemists and many of them will not allow their dearest friend to enter the mill." A second notice remarkable for its frequency is the "No Hands Wanted" which spares managers the trouble of interviewing applicants.

There hangs, according to statute, in every mill a notice headed with the Royal Arms bearing the name of the local factory inspector. In blanks must be written the hours of employment for women and children and the allowance for meal-times, as well as the dimensions of each work-room in cubic feet and the number of persons who may legitimately be employed in such airspace. An abstract from the Factory Acts follows and by one provision the employer is constrained to exhibit another placard. In the woolen and worsted (other than hosiery) trades the employer has to hang a statement of the rates of wages applicable to weavers' work. Cotton lists being a matter of more complication, it is only needful to hang in cotton-weaving sheds a statement of the basis and conditions by which weaving prices are regulated and fixed. Also under the statutes a notice fixed in the factory must detail the fines and deductions imposed for bad work, damage to goods or for material to be found by the employe, unless it is preferred to give personal notices in writing and have them signed by each employe.

Apart from these there is little uniformity in mill-notices. Sometimes not until an accident has made the precaution imperative are signs erected forbidding riding in the hoist, tampering with belts or cleaning machinery in motion. In silk mills warnings are most stringent about the disposal of waste and the carrying away of material. In a crape mill a notice warns employes on pain of instant dismissal neither to bring to, nor take from, the mill any parcel whatsoever. Time offices contain notices warning latecomers that they will be "quartered," i. e., lose a quarter of an hour's pay, if they are late at all and will not be admitted until breakfast-time if they are more than a certain number of minutes late. Then on the notice-board you find written prohibitions of smoking in passages, sending out for meat and drink, rowdy conduct at meal-times and such like. Once in a way attention is arrested by some curtailment of liberties, notice of wage reductions or of short time working. Then there is consternation and great chattering on the way home and in half an hour a whole community is perturbed and is avowing its readiness to bet that nothing so dreadful would have happened

were "t' owd master" alive. For this sort of misfortune the mill parliament blames not circumstances, or foreign tariffs or trade competition, but new bosses and the upstart young generation. In their attachment to old ways, old places and old employes English operatives are confirmed conservatives and if there are not more printed rules displayed for their guidance, one contributory may be that they are not accustomed to pay great attention to these things.

A MACHINE FOR RECLAIMING SILK.

This machine, recently patented, straightens the fibres of waste silk and cuts them to uniform length. The special feature is the use of a wire heated by electricity for severing the fibres. Fig. 1 is a side elevation. Fig. 2 an end elevation showing the cutting apparatus. Fig. 3 is an elevation of the cutting mechanism. The operation of this machine is described by its inventor as follows:

The waste silk in tangled and knotted masses and of various lengths is fed by the apron to the feed-rolls. The teeth on these rolls grasp the material and prevent it passing to the next roller at anything higher than a definite rate. This roller, 6, has a peripheral speed greater than that of the feed-rolls and tears away the silk. This operation tends to straighten out the silk upon the periphery of the roller, 6, the straightened portions lying at the roots of the card-clothing, while knotted and tangled masses are also carried around the roller, 6; such portions as extend above the clothing on the roller, 6, are taken up by the clothing on the roller, 9. The roller, 6, travels in an opposite direction to the roller, 9, where they come closest to each other. The cylinder removes all knots, kinks, and tangles and straightens out the fibres or threads on both cylinders. The material on the roller, 6, is carried around in front of the cylinder, and the several platinum wires, 16, on cylinder, 12, are rotated and pass between the sections of card-clothing into the spaces, 8, thus coming in contact with the straightened fibres or threads

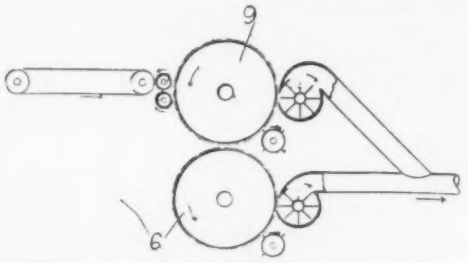


FIG. 1.

and burning them, thus cutting the material into approximately uniform lengths, which may be adjusted by suitably spacing the intervals in the card-clothing and by properly gearing the cylinder. After the material on the roller has been cut into the desired lengths it is carried around past the rotating brush-wheel, which causes a current of air that carries the fibres to any desired point. The material is drawn from cylinder, 9, cut by another set of wires and blown into the conduit.

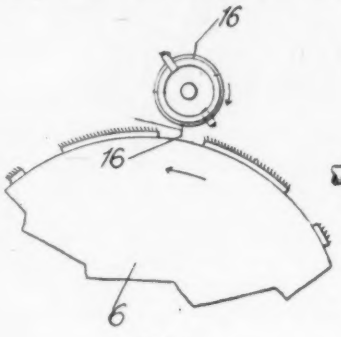


FIG. 2.

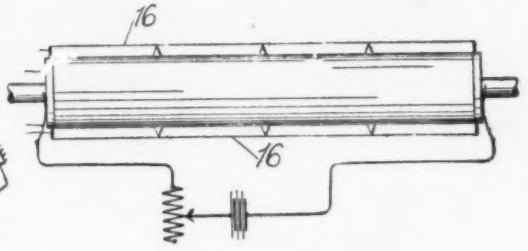


FIG. 3.

Over two million pounds of spun silk were imported into the United States during the year 1906 and were valued at more than three millions of dollars.

TEXTILE PROCESSES.

EDITED BY E. A. POSSELT.

OUR TEXTILE SCHOOL.

BROKEN STEEP TWILLS.

This division of weaves for textile fabrics has for its basis steep twills classified as 63° twills, or as some times also called diagonals, or regular steep twills, and the construction of which weaves has been thoroughly explained in connection with Lesson IV., the present lesson having for its object to show the arrangement of these steep twills for broken effects, and

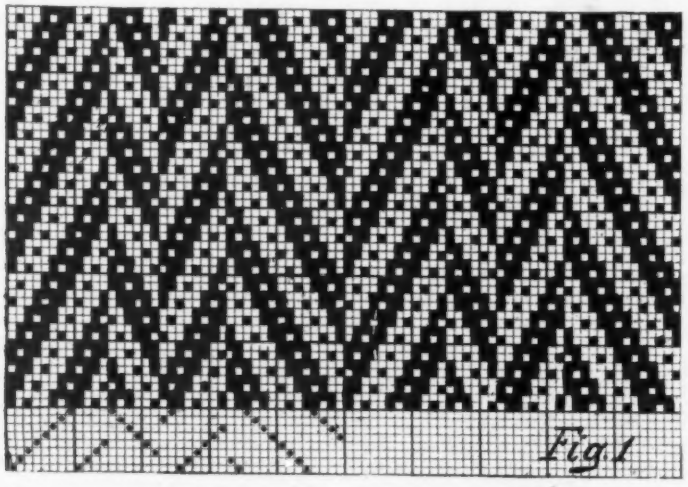


Fig. 1

which can be subdivided into (a) steep twills broken warp ways or (b) steep twills broken warp and filling ways.

BROKEN WARP WAYS.

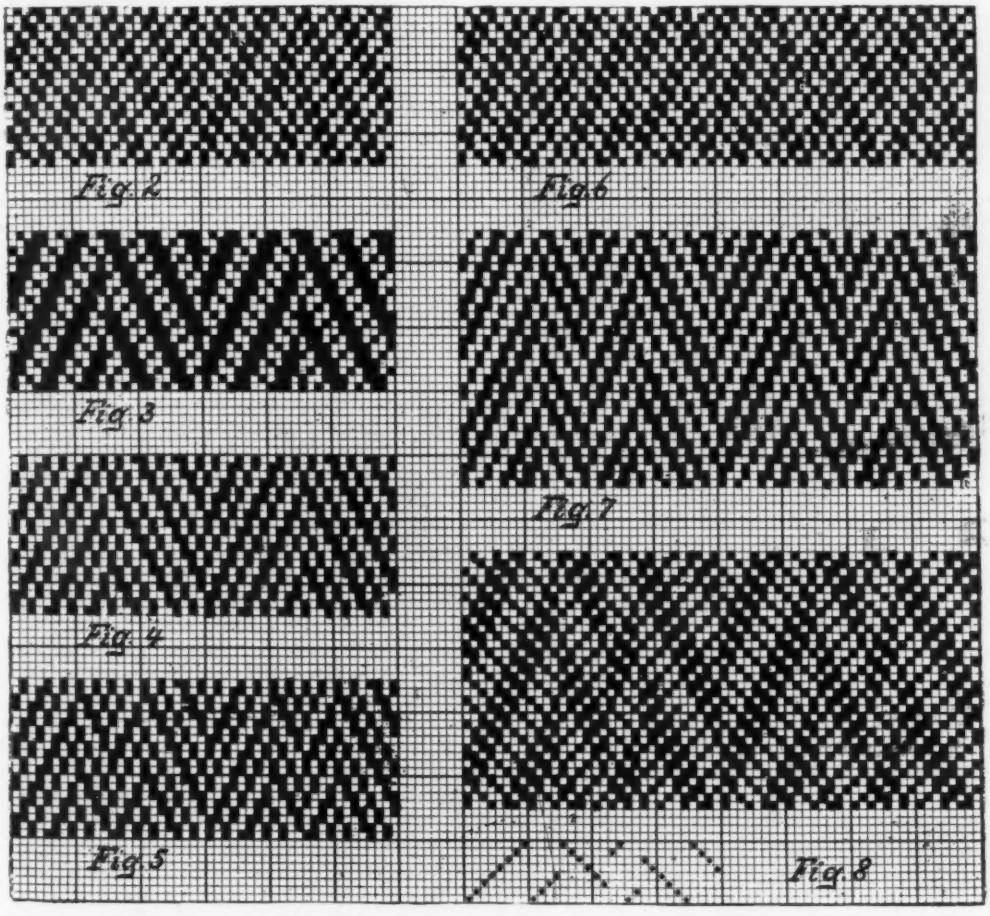
The rule for constructing these weaves is thus: Run steep twill for a certain number of warp threads in one direction, arrange a clear break if possible, or if this is impossible on account of the foundation of the twill originally selected, then arrange the break as good as possible, and reverse direction of steep twill for a certain number of warp threads. Continue to draft in this manner a steep twill, once in one direction and afterwards in the other direction, with breaks at the joining of the twills, after a given motive, until repeat of the new weave is obtained.

As will be readily understood, it will be always advisable to select an even-sided steep twill, since in this instance a clear break between the change of directions of the twill lines can only be obtained. Besides it must be remembered that in connection with uneven-sided steep twills (more particularly when dealing with effects broken warp and filling ways) the affair becomes somewhat more complicated, although some pleasing effects may be obtained in this way, a feature readily seen in connection with one of the examples of weaves given, both in connection with such as broken warp ways as well as such as broken warp and filling ways.

The number of threads of the steep twill to skip at the places where the break has to occur is: Skip half the number of warp threads that the repeat of the weave calls for, minus one, and for which reason in connection with an 8-harness steep twill we naturally have to skip ($8 \div 2 = 4 - 1 =$) 3 warp threads, in order to obtain the correct break. In the same man-

ner we have to skip in connection with a 14-harness steep twill $(14 \div 2 = 7 - 1 =)$ 6 warp threads of said steep twill.

We will now give a description of the various weaves accompanying this lesson and by means of which the student cannot help but familiarize himself with their construction as well as get the necessary knowledge, in order to construct new weaves of this system.



Weave Fig. 1 shows us the $^{4}_{1}{}^{3}_{4}{}^{1}_{3}$ 8 × 16 steep twill, being drafted for 12/ 6\ 8/ 14\, the complete weave repeating on 40 warp threads and 16 picks and which by means of its fancy draw given below the weave in ⊡ can be woven on 8-harnesses, if so required.

Weave Fig. 2 shows us the $^{2}_{1}{}^{2}_{2}{}^{1}_{3}$ 5 × 10 steep twill, being drafted respectively for 12/12\ and repeating on 24 warp threads and 10 picks. Although this steep twill repeats on 5-harnesses, by examining the new weave, it will be readily seen that 10-harness is the lowest number of harnesses possible for constructing this broken steep twill, drafting for this purpose all the twill running in one direction on 5-harness (say harness 1 to and inclusive 5) and all the steep twill running in the reverse direction on the other 5 harnesses (say harness 6 to and inclusive 10).

The two examples until now explained, refer to what we have to consider even sided steep twills, i. e., weaves in which warp and filling effects are balanced and when naturally the per-

fect clear cut-off between, or where the twill lines meet, is possible, whereas in connection with our next weave, i. e., Weave Fig. 3, we then meet with an uneven-sided steep twill, arranged broken warp ways, the affair in this instance referring to our $\frac{5}{2}\frac{1}{2}$ 5 × 10 steep twill, running alternately for 12/ and 12\. The two

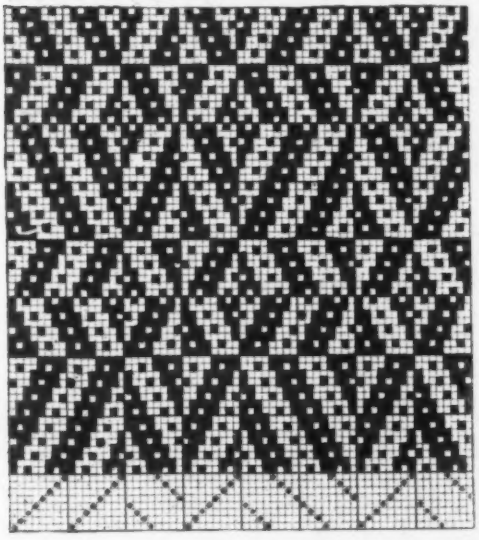


Fig. 9

breaks in the repeat of the weave between the places where these twill lines join is arranged as good as possible under the circumstances, in fact they present what we might say a pleasing effect. The same as in the previously given example, although the foundation steep twill weave repeats on 5-harness, the broken steep twill requires a 10-harness fancy draw for its lowest execution on the loom and corresponding to the last example, all the twill lines running in one direction have to be drafted on 5-harnesses, and all the warp threads producing twills running in the reverse direction on the remaining 5-harnesses, since the point of joining the twills changes the interlacing of the warp threads with a given pick, hence the additional 5-harnesses required.

Weave Fig. 4 shows us the $\frac{3}{3}\frac{2}{2}$ 5 × 10 steep twill running 12/ and 12\, the complete weave repeating on 24 warp threads and 10 picks and needs for its execution on the loom 10 harnesses, drafting all the twill running in one direction on harness 1 to and inclusive 5 and all the warp threads having their twill running in the reverse direction on harness 6 to and inclusive 10.

Weave Fig. 5 has the same steep twill for its foundation as previously quoted example, said steep twill being arranged in this instance to run for 8/ 4\ 4/ 8\, the complete weave repeatting on 24 warp threads and 10 picks, and the same as the previously quoted example, calls for 10 harness fancy draw for its execution on the loom.

Weave Fig. 6 has for its foundation weave the $\frac{2}{1}\frac{2}{2}\frac{1}{2}$ 5 × 10 steep twill, the same being drafted thus: 8/ 4\ 2/ 8\ 6/ 4\ and repeats on 32 warp threads and ten picks, calling for 10-harness for the lowest number of harnesses to weave, since the points of interlacing of warp

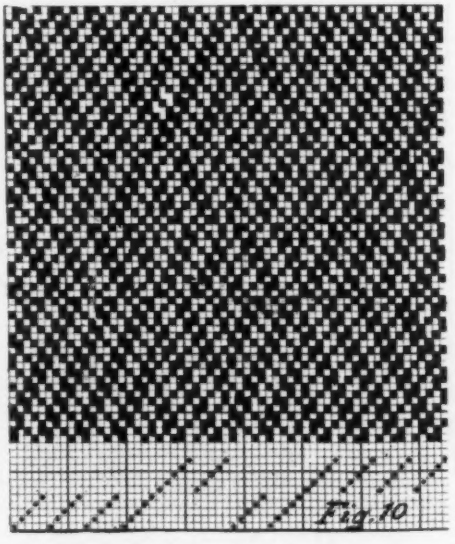


Fig. 10

threads with filling, between the left hand and the right hand twill, vary.

Weave Fig. 7 shows us the $\frac{3}{2}\frac{3}{3}\frac{2}{3}$ 8 × 16 broken steep twill, arranged after the following draft: 10/ 6\ 6/ 10\, the broken steep twill weave repeating on 32 warp threads and 16 picks and calls for its execution on the loom for 8-harnesses only, for the fact that in both the left as

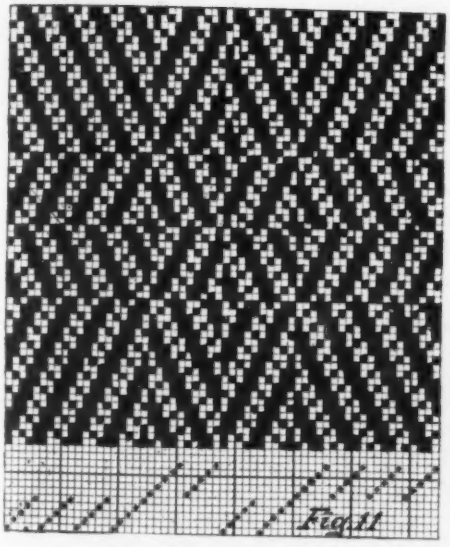


Fig. 11

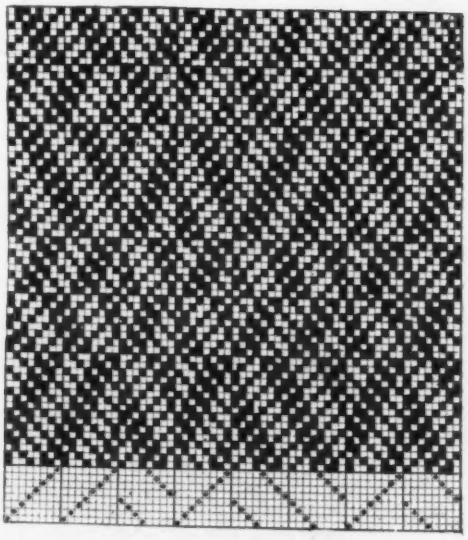


Fig. 12

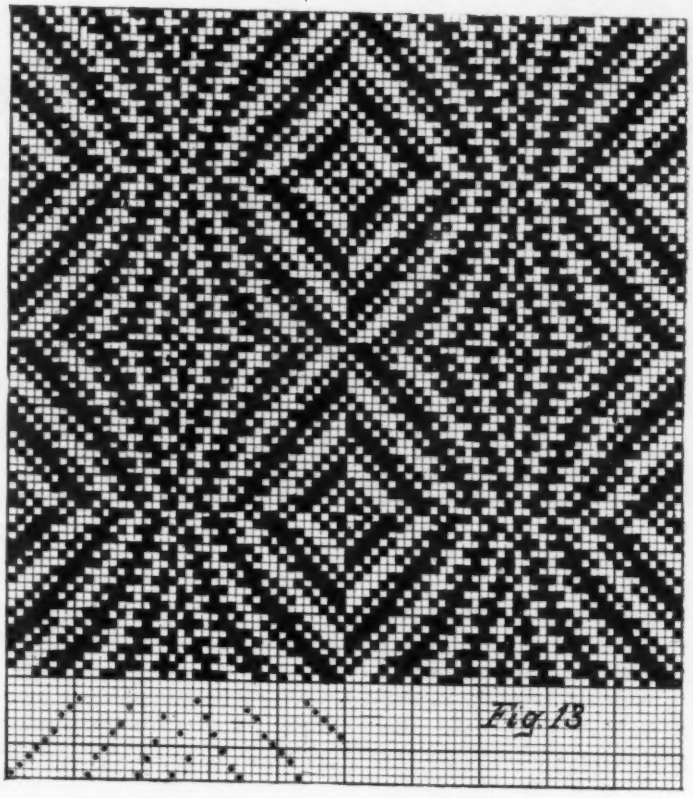


Fig. 13

well as the right hand twill, the points of interlacing of the warp threads with the respective pick correspond, hence the low number of harnesses.

Weave Fig. 8 shows us the $^{2}_{1}{}^{2}_{1}{}^{2}_{2}{}^{1}_{2}{}^{1}_{2}$ 8 × 16 steep twill arranged thus: 12/ 6\ 4/ 10\, the complete weave repeating on 32 × 16, and which by means of drawing-in-draft as given below this weave in ⊡, can be woven on 8 harnesses only.

after the following motive: 16/ 8\ 8/ 16\ 8/ 8\, the repeat of the new weave being 64 warp threads and 64 picks, and which weave by means of drawing-in-draft given below weave in ⊡ type can be woven on 8-harness fancy draw.

In connection with weave Fig. 10 the foundation steep twill used is the $^{2}_{1}{}^{2}_{2}{}^{1}_{2}$ 5 × 10 steep twill, the same being drafted thus: 20/ 10\ 10/ 20\, and the complete weave consequently re-

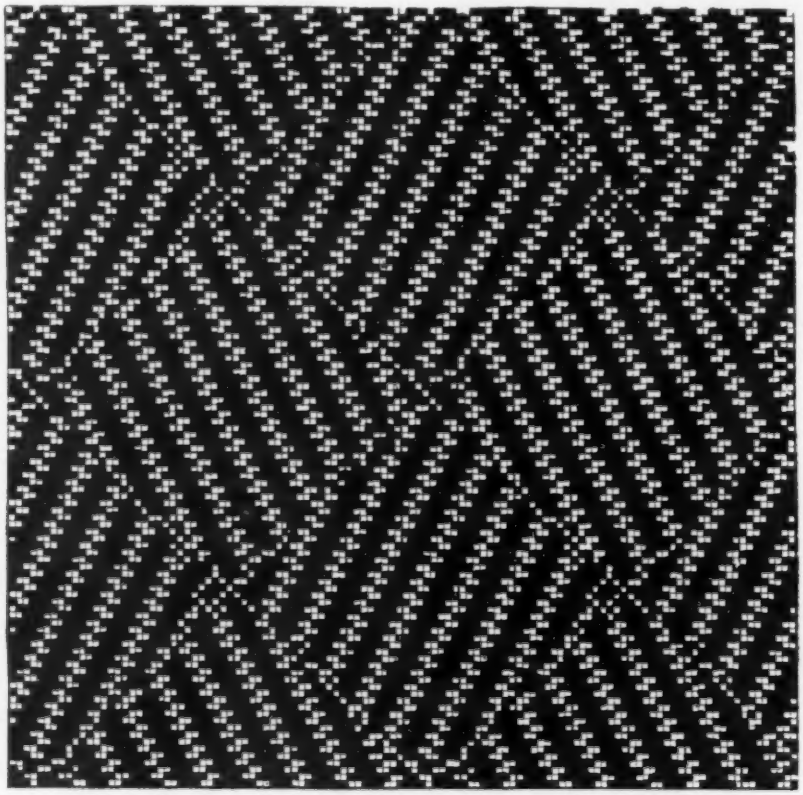


Fig. 14

Having thus given a thorough description of broken steep twills, broken warp ways, we now will take up in turn

Broken steep twills broken warp and filling ways, and the construction of which weaves will be readily explained by the student, by u explaining the next four examples of new weaves and of which

Weave Fig. 9 show us the $^{4}_{1}{}^{3}_{4}{}^{1}_{3}$ 8 × 16 steep twill, broken both warp and filling ways, peats on 60 warp threads and 60 picks, requiring 10 harnesses in sets of 5 for its execution on the loom, as clearly shown in connection with ⊡ type below the weave, i. e., drawing all the twill effect running in one direction on harness 1 to and inclusive 5 and all the twill effect running in the reverse direction on harness 6 to and inclusive 10.

Weave Fig. 11 shows us the $^{5}_{2}{}^{1}_{3}$ 5 × 10 steep twill, broken warp and filling ways after the

following motive: 20/ 10\ 10/ 20\, the complete weave repeating on 60 warp threads and 60 picks and which by means of its fancy draw given in ⊡ below the weave can be woven on 10 harnesses, drafting one set of twills on 5-harnesses and the other set of twills on the remaining 5-harnesses. In connection with this new weave, we want to call the student's attention to the fact that this refers to the uneven-sided broken steep twill, broken warp and filling ways, previously once referred to, i. e., referring to a weave in which the change or break between the reversing of the twills, both warp and filling ways, can never be made as sharp and distinct as in connection with even-sided steep twills; however, this is actually no disadvantage to the new weave, in fact in the present instance an advantage, since the result produced will be a more pleasing effect all around, besides easier on the yarn, etc. etc.

Weave Fig. 12 shows us the $^{2}_{1}{}^{2}_{1}{}^{2}_{2}{}^{1}_{2}{}^{1}_{2}$ 8 × 16 steep twill broken warp and filling ways, and arranged thus: 16/ 8\ 8/ 16\ 8/ 8\, the complete new weave repeating on 64 warp threads and 64 picks, and by means of its draft given in ⊡ type below the weave, can be woven on 8-harnesses, if so required, since the points of interlacing of the various warp threads, both in the left as well as in the right hand twills, coincide on the respective picks, hence the low number of harnesses required.

BROKEN CURVED TWILLS.

This system of weaves is closely related to the previously explained system of weaves, as well as to the curved twills explained in connection with our Lesson X. In order to explain this system of weaves to the student, weave Fig. 13 is given and which has for its foundation the $^{1}_{1}{}^{3}_{1}{}^{1}_{3}$ 10 × 10 regular twill arranged first for a curved twill thus:

6 warp threads, 45° twill; 1 warp thread, 63° twill; 3 warp threads, 45° twill; 1 warp thread, 63° twill; 1 warp thread, 45° twill; 1 warp thread, 63° twill; 1 warp thread, 45° twill; 4 warp threads, 63° twill; 2 warp threads, 70° twill; repeating on 20 warp threads and 10 picks. This curved twill in turn is arranged for a broken curved twill by changing the direction of its twill line both warp and filling ways, every 20 warp threads and 20 picks, the new weaves consequently repeating on 40 warp threads and 40 picks, and which if necessary, by means of draft given in ⊡ type below weave, can be woven on 10-harnesses; however a 20-harness fancy draw will be found easier for the weaver to handle on the loom.

JACQUARD EFFECTS.

Before closing this lesson with reference to broken steep twills, it will be interesting to the student to show a jacquard effect for these broken steep twills, and for which reason the accompanying weave Fig 14 is given, the same repeating on 56 warp threads and 56 picks and readily shows to the student how to proceed provided fancy effects in connection with these broken steep twills should ever be required of him to be gotten up. The foundation steep twill used in this instance is the $^{1}_{1}{}^{7}_{1}{}^{1}_{2}$ 13 × 13 63° steep twill, having for its foundation again the corresponding 13-harness regular twill.

WOOLEN CARDING.

(Continued from July.)

With reference to the balls and creel feed, the film as is combed from the doffer by means of the doffer comb, of either the breaker or intermediate card is then guided into a funnel and thus condensed into a sliver, i. e., drawing, and wound on wooden spools either by means of the common side-drawing spool attachment of the carding engine, or what is preferable, wound on similar spools by means of a balling head attachment.

The balling-head is a modification of the common side-drawing spool-system, consisting in appliances for winding the sliver in balls under considerable pressure. The advantages of the balling-head compared to the common side-drawing attachment, are first, the balls are all one size, and second, they permit about twice as much material to be condensed into the same size of spools, thus saving considerable labor in filling up the creel, besides the same are working automatically; i. e., when the ball is sufficiently large, the same is thrown out by an ingenious motion

and a fresh bobbin drops in its place. The only objection by some carders against the same is, that they take up space in the alley way.

The balling head or machine in its principle of construction consists

(1) In means for rotating the spool by frictional contact.

(2) An arrangement for giving a traversing motion to the sliver as it is being wound on to the spool.

(3) A mechanism for inserting and withdrawing the spindle from the spool on which said spool revolves while being filled.

(4) A device for tearing or severing the sliver from the spool at the completion of said spool, and which at the same time starts the end of the sliver on to a new spool.

(5) A mechanism for discharging the spool after it has been filled, and

(6) An arrangement for entering an empty spool to replace the full spool.

The winding arrangement comprises a positively driven drum, situated on the main shaft with the driving pulley, the spool which receives the sliver resting on said drum, the latter being located between the two side frame plates of the machine, and a little higher than the centre of said frame plates. The guiding arrangement for the sliver, as combed from the doffer cylinder of the breaker card, consists of an arm, pivoted near the bottom of the machine and extending upwardly towards the spool, being provided at its top end with a slot through which the sliver passes. A back and forth motion, across the width of the spool, is given to this arm by a cam arrangement, in order to lay the sliver smoothly on the spool. When the latter is filled, the spindle, on which the spool had been revolving and which had kept it in the machine, is then automatically withdrawn by a lever and cam arrangement, said lever being pivoted near the bottom of the machine and is actuated at the proper time by the cam previously referred to, and which is secured to the central gear on the frame plate, giving it in turn alternately an outward and an inward motion. The spindle, being loosely secured in the slot at the top of the lever receives a motion corresponding to that of the lever.

The severing and starting of the sliver at the completion of a spool is accomplished by a specially shaped breaker arm which is actuated through a level from a cam, said motion causing said breaker arm to rise and engage the sliver and break the same, in turn wrapping the loose end of the sliver around the new spool which takes the place of the full one.

So as to give this breaker arm a more positive and at the same time sharper return action, after it has performed the two operations thus referred to, a spring actuated return presser, arranged on one of the frame plates, is provided.

When the spool is filled with the proper amount of sliver, and which is regulated by the setting of a screw on the retaining lever, and the spindle withdrawn, the discharging mechanism comes into operation, in turn removing the full spool from the machine. This motion consists of a bat, attached to a shaft carrying a sprocket. A chain passing over this sprocket passes in turn also around a similar one situated between the two frame plates, said sprocket being on the same stud with the gear on the outside of the frame plate. This gear meshes with another gear, loosely collared on the main shaft, and has a pawl pivoted on its side, a lever from said pawl extending upwardly, and in engagement with the vertical retaining lever connected to the vertical slide carrying the spindle, and in which manner the pawl is held out of contact with a ratchet, as secured to the main shaft, the arrangement receiving no motion while said pawl is held up.

As the spool gradually becomes larger, on account of the winding on of the sliver, the slides carrying the spindle then raise gradually, and at the completion of a spool, have risen to such a point that the retaining lever moves out of contact with the lever extending from the pawl, to permit the latter to drop into contact with the revolving ratchet, which action carries it around with it and in turn also the gear on which it is pivoted.

This motion in turn is transferred through the other gear and sprockets to the shaft carrying the bat and this is in turn given a revolution, during which it forces the full spool out of its place. As soon as this hap-

pens the two slides drop down to their original position, as at the beginning of winding a spool, so that when the lever, extending from the pawl, is brought around by the pawl still being in contact with the revolving ratchet, said lever comes in contact with the lowered retaining lever and the pawl is taken out of contact with the ratchet, which of course stops the motion. As soon as the full spool has been pushed out an empty one takes its place, being placed in position by a special mechanism, situated at the left hand side of the machine. The empty spools are held in reserve in a trough, as situated at the upper left hand corner of the machine, and are fed from it by the mechanism previously referred to.

The bank creel: The filled spools, after taken from the machine, are placed in a creel at the back of the second breaker card, and the sliver fed directly from the spools to the card. This creel is known as a bank creel and consists of five horizontal pairs of rolls placed vertically over each other in the creel and sufficiently far apart to accommodate the spools on said rolls, dividing rods being placed vertically to separate the spools, said rods being oval in cross section to prevent accumulation of flyings about them. The rods are positively driven through gears, so as to produce a positive unwinding of the slivers.

The advantages of the balling head over the common slide-drawing attachment are:

(1) A saving in waste, since the spools cannot be "run over" and made too large by the operator's negligence or while attending to other duties.

(2) More doublings can be made at the second breaker card, a feature resulting in an evener count of yarn produced.

(3) The positive unwinding motion on the creel prevents useless strain and consequent breakage of the slivers, as compared to common side drawing and feeding the same to the second breaker card by what is known as lap system.

One disadvantage of this system of feeding compared to a continuous feed is, that it takes on an average, one full day to produce one set of these balls for the creel, hence the receiving card will be one day behind the feeding card. This no doubt will be of great inconvenience if carding small lots, or wanting roving quickly, besides all the waste made during this day by the receiving card (which cannot be used over again with the original lot) must be stored until a duplicate lot is picked.

The object of the Apperly feed is to make the delivery of the sliver or side drawing, from one carding engine to its successive carding engine (1 to 2 or 2 to 3) a continuous operation, the sliver being fed to the receiving card in such a manner so as to produce an even and uniform feed across the whole working width of the card.

To accomplish this even and uniform feeding, the delivered sliver has to be laid by the Apperly feed diagonally back and forth across the width of the feed table of the receiving carding engine, making it a continuous layer of sliver corresponding to that of a lap as used in the revolving flat card, in connection with cotton spinning.

The Apperly feed consists in two different mechanisms, viz:

(1) A delivering mechanism for the preceding card and

(2) A mechanism for laying the continuously delivered sliver diagonally on the feed table of the succeeding card.

The first mentioned mechanism consists of a trumpet and a pair of calender rolls, situated at the side of the delivery end of the card, and by which the film of carded wool is condensed and in this shape taken from the carding engine, from it then is guided upwardly to an overhead guide pulley, then to a similar one, suitably located, so that the sliver in passing from it is in a convenient position to be fed through the laying mechanism, and which constitutes the principal part of the Apperly feed, for which reason a description of it will not be amiss.

The mechanism is placed diagonally to the feed table, and consequently the travel of its "carrier" back and forth across the feed table of the receiving carding engine is at a corresponding angle. This carrier has a pair of feed rolls provided on it, which are driven by the movement of said carrier back and forth, the sliver being positively laid on the table.

The carrier is the principal part of the

mechanism and consists essentially of a rocking plate carrying a pair of gears, which are in mesh with each other and one of which is always in contact with a stationary rack. On the same studs with these gears are the feed rolls of the carrier. From the fact that one of the gears is in contact with the rack and the two gears are in mesh with each other, when the carrier is moved by its traveling chain the gears will receive a rotation and consequently also the feed rolls.

In order that these feed rolls will always revolve in one direction, independent of the movement of the carrier, the rocking plate is moved at the end of each traverse of the carrier, and when consequently the gear which is in contact with the rack is moved out of contact, and the other gear thrown into contact, for which reason the reverse direction of travel of the carrier does not change the direction of rotation of the feed rolls.

(To be continued.)

FOREIGN NOVELTIES.

Worsted Suiting.

Complete Weave. Repeat 6 × 6.

Warp—4650 ends, 12 harness, straight draw.
Reed—18×4=65 inches wide.
Dress—

3 ends, 2/45s worsted, black	= 3 ends
1 end, 2/45s worsted, light and dark gray	× 22 = 44 ends
1 end, 2/45s worsted, black	
1 end, 2/45s worsted, light and dark gray	= 1 end

Repeat of pattern: 48 ends

Filling— 66 picks per inch, arranged thus:

3 picks, 2/30s worsted, black	= 3 picks
1 pick, 2/30s worsted, light and dark gray	× 25 = 50 picks
1 pick, 2/30s worsted, black	
1 pick, 2/30s worsted, light and dark gray	= 1 pick

Repeat of pattern: 54 picks

Finish—Worsted finish, 56 inches wide.

Worsted Suiting.

Complete Weave. Repeat 4 ×4.

Warp—4112 ends, 12 or 16 harness straight draw.
Reed—15½×4=66 inches wide in loom.
Dress—

3 ends, 2/40s worsted, dark brown	× 4 = 64 ends
1 end, 1/32s worsted, black and 1/64s white, twist	
1 end, 2/40s worsted, dark brown	
3 ends, 1/32s worsted, black and 1/64s white, twist	
3 ends, 2/40s worsted, fancy mix	
1 end, 1/32s worsted, black and 1/64s white, twist	
1 end, 2/40s worsted, fancy mix	
3 ends, 1/32s worsted, black and 1/64s white, twist	
2 ends, 2/40s worsted, dark brown	× 3 = 24 end
2 ends, 1/32s worsted, black and 1/64s white, twist	
2 ends, 2/40s worsted, fancy mix	
2 ends, 1/32s worsted, black and 1/64s white, twist	
1 end, 2/52s worsted, red	= 1 end
1 end, 2/40s worsted, dark brown	= 1 end
2 ends, 1/32s worsted, black and 1/64s white, twist	= 2 ends
2 ends, 2/40s worsted, fancy mix	= 2 ends
2 ends, 1/32s worsted, black and 1/64s white, twist	= 2 ends
1 end, 2/52s worsted, red	= 1 end
1 end, 2/40s worsted, dark brown	= 1 end
2 ends, 1/32s worsted, black and 1/64s white, twist	× 3 = 24 ends
2 ends, 2/40s worsted, fancy mix	
2 ends, 1/32s worsted, black and 1/64s white, twist	
2 ends, 2/40s worsted, dark brown	
2 ends, 1/32s worsted, black and 1/64s white twist	= 2 ends
2 ends, 2/40s worsted, fancy mix	= 2 ends
2 ends, 1/32s worsted, black and 1/64s white, twist	= 2 ends

Repeat of pattern: 128 ends

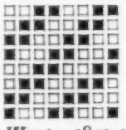
Filling—64 picks per inch, arranged thus:

3 picks, 1/32s worsted, black and 1/64s white, twist	× 4 =64 picks
1 pick, 2/40s worsted, fancy mix	
1 pick, 1/32s worsted, black and 1/64s white, twist	
3 picks, 2/40s worsted, fancy mix	
3 picks, 1/32s worsted, black and 1/64s white, twist	
1 pick, 2/40s worsted, dark brown	
1 pick, 1/32s worsted, black and 1/64s white, twist	
2 picks, 2/40s worsted, dark brown	× 4 = 32 picks
2 picks, 1/32s worsted, black and 1/64s white, twist	
2 picks, 2/40s worsted, fancy mix	
2 picks, 1/32s worsted, black and 1/64s white, twist	
2 picks, 2/40s worsted, dark brown	= 2 picks
2 picks, 1/32s worsted, black and 1/64s white, twist	= 2 picks
2 picks, 2/40s worsted, fancy mix	= 2 picks
2 picks, 1/32s worsted, black and 1/64s white, twist	= 1 pick
1 pick, 2/40s worsted, dark brown	= 1 pick
1 pick, 2/52s worsted, red	= 2 picks
2 picks, 1/32s worsted, black and 1/64s white, twist	= 2 picks
2 picks, 2/40s worsted, fancy mix	= 2 picks
2 picks, 1/32s worsted, black and 1/64s white, twist	= 2 picks
1 pick, 2/40s worsted, dark brown	= 1 pick
1 pick, 2/52s worsted, red	= 1 pick
2 picks, 1/32s worsted, black and 1/64s white, twist	× 4½= 32 picks
2 picks, 2/40s worsted, fancy mix	
2 picks, 1/32s worsted, black and 1/64s white, twist	
2 picks, 2/40s worsted, dark brown	

Repeat of pattern: 144 picks

Finish—Worsted finish, 56 inches wide.

Worsted Suiting.



Complete Weave. Repeat 4 ×4.

Warp—3840 ends, 8 or 12 harness straight draw.
Reed—15 × 4 = 66 inches wide in loom.
Dress—

1 end, 3/64s worsted, 2 ends dark gray and 1 end white	= 1 end
1 end, 2/52s worsted, red	= 1 end
1 end, 3/64s worsted, 2 ends dark gray and 1 end white	× 5 = 10 ends
1 end, 2/32s worsted, brown	
1 end, 3/64s worsted, 2 ends dark gray and 1 end white	× 6 = 12
1 end, 2/32s worsted, drab	
1 end, 3/64s worsted, 2 ends dark gray and 1 end white	× 6 = 12
1 end, 2/32s worsted, brown	× 3 = 72 ends
1 end, 3/64s worsted, 2 ends dark gray and 1 end white	× 6 = 12 ends
1 end, 2/32s worsted drab	

Repeat of pattern: 96 ends

Filling—63 picks per inch, arranged thus:

1 pick, 2/52s worsted, black and white, twisted with single 52s worsted black	=	1 pick
1 pick, 2/52s worsted, red	=	1 pick
1 pick, 2/52s worsted, black and white, twisted with single 52s worsted black 1 pick, 2/52s worsted black	× 5 =	10 picks
1 pick, 2/52s worsted, black and white twisted with single 52s worsted black 1 pick, 23/2s worsted, brown	× 6 = 12	
1 pick, 2/52s worsted, black and white, twisted with single 52s worsted black 1 pick, 2/32s worsted, black	× 6 = 12	× 3 = 72 picks
1 pick, 2/52s worsted, black and white, twisted with single 52s worsted black 1 pick, 2/32s worsted brown	×6 =	12 picks
Repeat of pattern:		96 picks

Finish—Worsted finish, 56 inches wide.

A CLOTH SMOOTHING DEVICE FOR LOOMS.

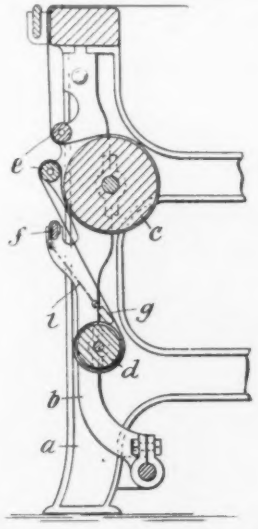
The object aimed at in this new device is to provide means by which any possible wrinkling and cockling of the cloth is removed before the latter is wound on the cloth roll. The device is used in connection with the take-up roll of the loom and consists in providing to said take-up roll, a bar which is fastened on each side of the loom in such a position that it will reach so far into the angle between the take-up roll, and the cloth as it comes from the loom, that it will form somewhat of a bend in the cloth, and thus smoothen, or as we might call it, iron out all the wrinkles or cockles which possibly are formed at weaving.

In order to be able to better explain the construction and operation of the new device to the reader, the accompanying illustration is given, the same showing the new device in operation, those portions of the loom to which it more particularly refers only being given.

A description of the construction and operation of the new device is best given by quoting letters of references accompanying the same and of which a shows us a portion of one of the two frame sides of a loom, b, a bracket fastened to this loom side, a duplicate of this bracket being also attached to the other side of the loom. c is the sand roll, d the take-up roll and e guide rolls, all of them being carried in suitable bearings provided for this purpose in bracket, b.

As now constructed, the loom is provided with a bar, f, arranged in bracket, b, said bar being provided with the intention that the same will remove wrinkles formed in the cloth, by means being formed with a convex curve, but which it fails to accomplish.

The inventor of the new device discards with the use of said bar any more than using it as a means for supporting the new bar, g, and which forms the gist of the new invention. This new bar, g, has one long side formed as a convex curve, and is hollowed out for making it lighter, and has the edges with which the cloth comes in contact



rounded. To the rear side of bar, g (one near each end) are fastened eyes to which in turn are fastened the hooks or wires for supporting it to bar, f, and thus holding it in such a position that the cloth in passing from the take-up roll to the winding roll will tend to press against the curved side of the bar, which causes any wrinkles to be removed, and the cloth is wound on the roll perfectly smooth.

In the United Kingdom there are 107 jute factories, and of these 97 are located in Scotland.

It is estimated that the cotton crop of Russia in 1906 amounted to about 650,000 bales of 500lb. The previous largest crop was that of 1900, with 500,000 bales. The annual consumption of cotton by Russian spinners is estimated at about 1,200,000 to 1,300,000 bales.

CORRESPONDENCE AND NOTES

Upon Textile Topics At Home and Abroad.

IMITATING FUR IN WOVEN FABRICS.

(From Leipziger Monatschrift fuer Textil-Industrie.)

The manufacture of cloth in imitation of fur requires special manipulation in both the weaving and the finishing processes and has been developed to such a degree that in many cases it is difficult to detect the woven goods from the natural fur. Natural fur has

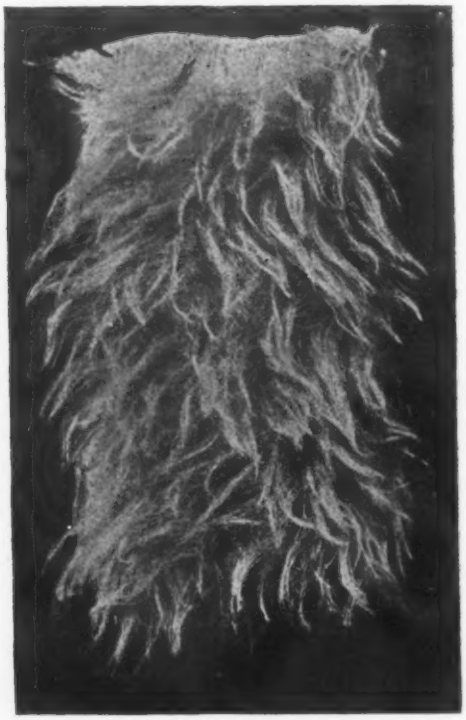


FIG. 1.

hair lying generally in one direction pointing from the head to the tail. This peculiarity is imitated in plush fabrics by brushing the pile and then setting it in position by steaming. Another peculiarity of the natural fur is that the hairs vary in length and as a consequence the fur is thicker next to the skin than on the outside. This is also closely imitated in the woven goods.

Fig. 1 is an imitation of a polar bear skin. The weave pattern for this sample is shown at Fig. 2, being the ordinary Utrecht velvet weave so extensively used in the manufacture of plush. Figs. 3 and 4 show two longitudinal sections of the cloth. The warp pattern consists of two pile threads, a and c, and two ground threads, b and d, arranged in

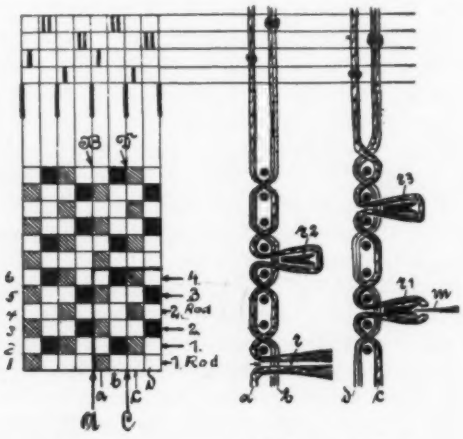


FIG. 2. FIG. 3. FIG. 4.

this order, a b c d. The pattern consists of four ends in the warp and six picks in the filling, the two pile sheds in which the wire rods are inserted being reckoned in the filling pattern. The ground threads of the warp, b c, considered apart from the pile threads, form a rib with two picks in a shed. After every two picks all the ground threads are lowered and one-half the pile threads are raised, alternating with the odd and even threads. In the cross section, Fig. 2, the pile pick is shown at shed 1 and shed 4, where a metal rod is inserted having a

groove at the top along which a knife is afterward drawn to cut the pile.

The tufts of the pile are transposed as shown by comparing Fig. 3 with Fig. 4. This necessitates weaving the pile warp from two separate beams; one for threads, a, and the other for threads, c.

FIG. 5.

FIG. 6.

The advantage of this weave consists in the fact that the pile threads are well stitched in the fabric, there being four picks separating the projecting tufts. This is shown at Fig. 3. The pile thread, a, passes over the rod at r, then under the first pick and over the second and third, and then under the fourth pick, after which it is brought over the rod, r^2. This gives a much better stitching of the pile than that shown at Fig. 5, where the pile thread after being cut is held by only one pick.

The rod shown at Figs. 3 and 4 gives a pile of uniform height, each being cut in the centre along the groove at the top of the rod, making all the tufts of the same length. In the natural fur, however, the hairs vary in length. This variation is reproduced in the woven fabric by the use of rods of different sizes having grooves on the side at varying distances from the lower side. Fig. 6 is a longitudinal cross section of a fabric in which three different rods are used. Rod 1 is 4 inches high, and having a groove at the top gives two tufts, 4 and 5, each 4 inches long. Rod 2 is 7 inches high and has a groove at the side 4 inches from the cloth, giving two tufts, one, 6, 4 inches long, and the other, 7, 10 inches long. Rod 3 is 12 inches high and has a groove half way down the side, giving one tuft, 8, 6 inches long and the other, 9, 18 inches long.

The sample shown at Fig. 1 is woven in a reed having 22 dents per inch, each dent containing a pile thread and a ground thread as shown at Fig. 2. The method of reeding the warp shown in Fig. 2 ensures a smooth appearance of the goods. The ground thread, b, and the pile thread, c, interlace the filling in almost exactly the same manner. If these two threads were drawn in the same dent, as shown at Fig. 7, there would be danger of the two threads becoming transposed in the cloth, bringing thread, c, at the left of thread, b, and destroying the regularity of the pile, which is essential in smooth plushes.

Figs. 2 and 9 show the warp reeded so as to bring in each dent two threads that interlace the filling opposite to each other. Moreover, it is advisable in order to produce a uniform pile to have a pile thread at the left of the thread that interlaces the filling in opposite order to it; that is, making the pile thread the left hand thread in each dent. The pile thread is then held firmly in position by the ground thread to the right when the knife cuts the pile from left to right. This arrangement of the warp threads is shown at Figs. 2 and 9. If, however, the pile thread, c, is the right hand thread in each

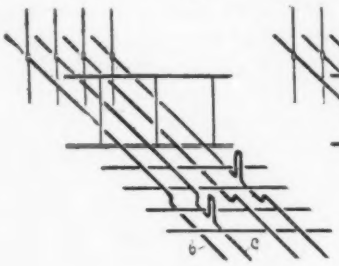


FIG. 7.

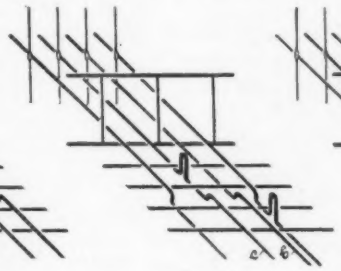


FIG. 8.

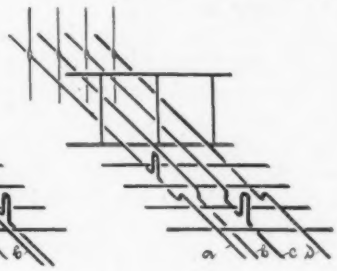


FIG. 9.

dent, Fig. 8 (bringing to the right of it in the cloth in the adjoining dent the ground thread, b, that interlaces the filling in the same manner as the pile thread), the knife may draw the pile thread over the ground thread. The warp for the sample shown consists of 2/36s mohair for the pile, one thread in the heddle, and 2/24s cotton for the ground thread, two threads in the heddle. The filling is woven with 32 picks per inch, exclusive of the pile sheds. The cheaper

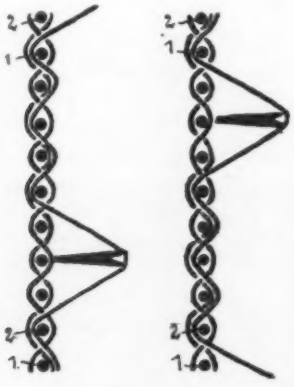


FIG 10.

qualities are made with a coarser set and the pile threads are set in a different order, say, in a pattern of 8 to 12 picks, instead of 4 picks, as shown at Fig. 4.

Fig. 10 shows two longitudinal sections of a weave having 8 picks in the filling pattern.

This class of goods has of late years been made on power looms, but not with tufts of different lengths. Neither is it possible to obtain so deep a pile on the power loom as by the aid of rods on the hand loom. The production of the power loom, however, is much greater and reduces the price so as to prevent competition of the hand loom goods. The goods as they come from the loom are heavy and unattractive in appearance because the yarn in the pile still retains much of the twist imparted in spinning and twisting, the desired appearance must therefore be obtained by finishing. The goods are first napped either by hand or machine in order to separate the fibres composing the tufts in the pile. This work is much better done with dull wire. The goods are next whipped to raise the pile and then cropped to remove any straggling fibres.

The pieces are steamed in a closed kettle at a pressure of about eight pounds. The cloth is suspended by one selvage from hooks arranged in the form of a spiral, bringing the whole piece within the circle formed by the steam chamber. In this way the pile does not come in contact with any part of the piece and all sharp folds in the fabric are avoided. Such folds are liable to be set in the steaming process, resulting in marks that can not be removed. The goods are steamed for about three-quarters of an hour, then left to cool, after which they are rinsed in an open washer in a 5° Be. soda solution, then rinsed well; after the water is well drained off, the goods can be bleached if it is desired to imitate the fur of the polar bear; or dyed and the tips of the pile afterward bleached white to imitate the fur of the reindeer. In the latter case the light or dark brown shades are stripped with a hot solution of permanganate of potash in a wooden tub. The temperature should not be over 100° F. The goods should be run through the liquor in the open width without wrinkles. When the desired shade is obtained the pieces are rinsed in cold water, extracted and dried on tenter bars. The pieces after rinsing are frequently run for half an hour in a dilute solution of glycerine, about two pounds being used for a piece, which greatly increases the lustre of the cloth. The bleaching solution by which the color is stripped from the top of the pile consists of a mixture of eight parts of peroxide of hydrogen and one part of muriatic acid. This is applied either by hand or machine on the face of the goods. The brown color is stripped from the projecting ends of the fibres. During this stripping process and for some time afterward the goods are exposed to the air to prevent the body of the fabric from being affected. They are then washed, extracted and dried.

For the fiscal year of 1906 our exports to Switzerland amounted in value to only $399,999; our imports from Switzerland in the same year amounted to $23,421,000.

THE SQUARE MOTION WORSTED COMB.

BY JOHN BROWN.

The square motion comb, originally patented in 1846 by the late S. C. Lister (afterward Lord Masham), passed through many vicissitudes before it was made into a workable machine in the early fifties, mainly by contrivances invented and patented by the late Sir I. Holden and members of his firm.

Fig. 1 shows the working side of a square

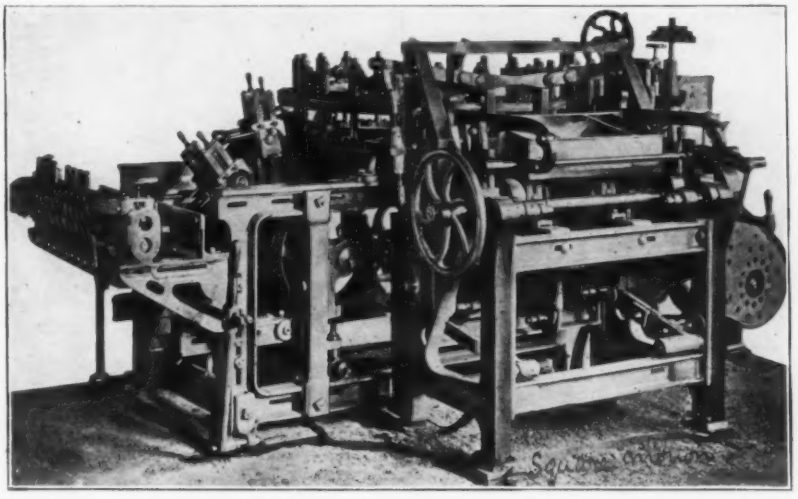


FIG. 1.

motion comb. It derives its name from the fact that the working combs on passing through fibres, delivering neps, drawing from staple and returning to circle work in a square as shown at Fig. 2. Unlike the Noble and nip machines, the wool passing through this machine does not come off simply as top and noil, but owing to the free way in which the wool is placed on the carrying circle, overhanging fibres are left inside the circle, which have to be taken out before the noil is finally stripped.

The fibres thus drawn from the noil are called "backings"; and by the peculiar way in which the working or clearing head (square motion) cleans the staple, part of the short wool is brought away with the neps, etc. This is called "robbings" and they, together with the backings, have to be taken back and recarded and worked up. Fig. 2 shows the backing and noil stripper. In spite of this drawback the square motion has steadily made its way and as several of the royalties on the various patents have expired it is now the type of machine most generally used in the great French wool combing centers. The largest firm of wool combers in England use it exclusively for short wools.

One of the reasons for this is that all the staple is kept in one direction, differing in this respect from the Noble comb, where the staple is divided and the sliver draws from both ends. Again the fallers of the working head pass through every part of the stock about eleven times during the process of combing. This not only ensures thorough

FIG. 2.

combing, but, by the hot gills passing through the wool so many times, gives a finish or bloom to the sliver, which is not attained by any other combing machine. It produces a top with the very highest spinning qualities, and one that can be worked with the lowest percentage of waste. This

is an important consideration when wool prices rule high. Fig. 3 is a view of the square motion comb showing the draw-off for sliver, backing, and noil.

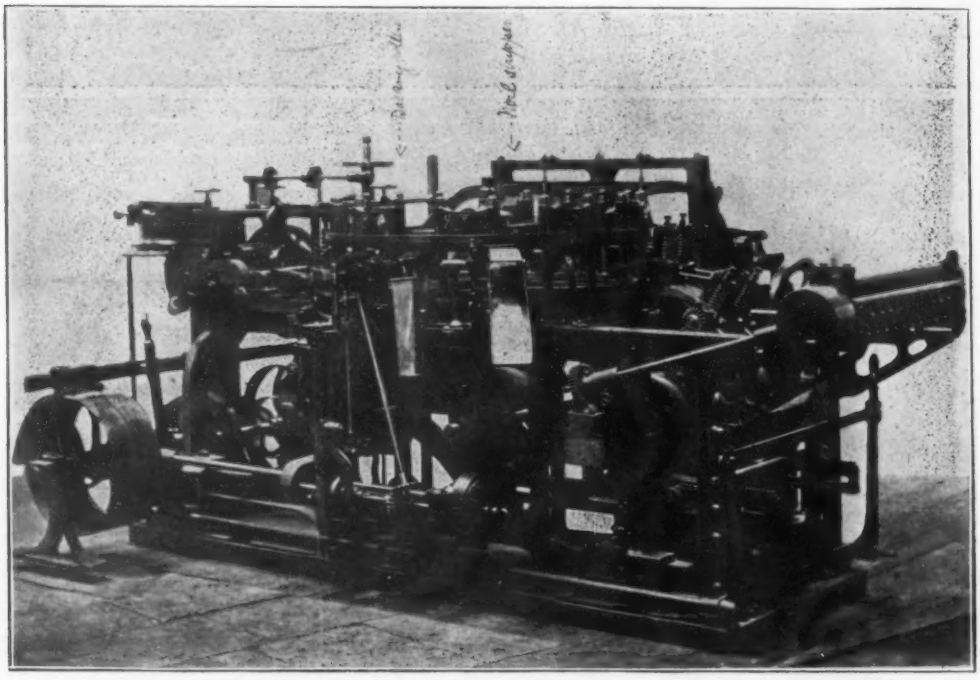


FIG. 3.

DESCRIPTION OF WORKING PARTS.

Fig. 4 is a plan showing the relative position of the principal working parts. A, the feed rollers which are driven by a worm gear fixed at the head of the filling head shaft shown plainly at the right of Fig. 3; B B, filling heads which work alternately at a slight angle; C, carrying circle, 4 feet in diameter with two rows of pins; D, press plate which covers the circle at the point where the square motion fallers pass through the fibre holding the wool firmly in the circle; E, square motion, the main combing part of a machine; F, push-up knife, the function of which is to lift the wool from the bottom of the circle into overhanging segments of the "nacteur" or inverted circle; F^1, wind chest with movable nozzles for directing the fibres to the draw-off rollers; G, cut off knife for regulating the amount of short wool to be drawn into the sliver; H, draw off rollers from which the combed sliver passes along the table leather to I, the calender rollers, thence to J, the coiler; K, is the stripping knife which clears the segments, pulling any adhering fiber down into the circle; L, backing rollers for stripping long overhanging fibers out of the noil; M,

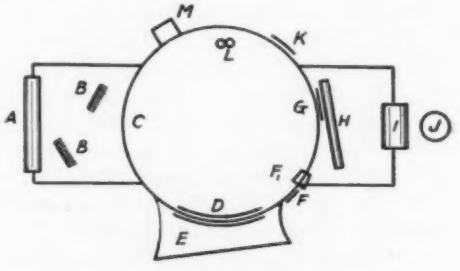


FIG. 4.

noil stripper, which clears the circle ready for refilling by B B. In many instances instead of backing rollers and noil stripper a small inverted circle is placed near K. The

noil is pushed up into this and the backings stripped off by small rollers placed outside.

Fig. 5 is a plan of the driving parts. The figures in diagram show the diameters of the pulleys and the number of teeth in the wheels, thus making it easy to calculate the relative speeds of the various parts of the machine. A, main pulleys; B, shaft for driving backing roller and noil stripper; C C, pulleys for square motion; D D, pulleys for push-up knife; E E, pulleys for filling heads; F, driving wheels or draw off rollers and noil stripper; H, driving for 3-inch feed rollers; C^2, equal bevel wheels on square motion shaft. It will be noted that all the main working parts are driven from one shaft. This shaft lies at the base of the machine, Fig. 3, ensuring rigidity and absence of vibration.

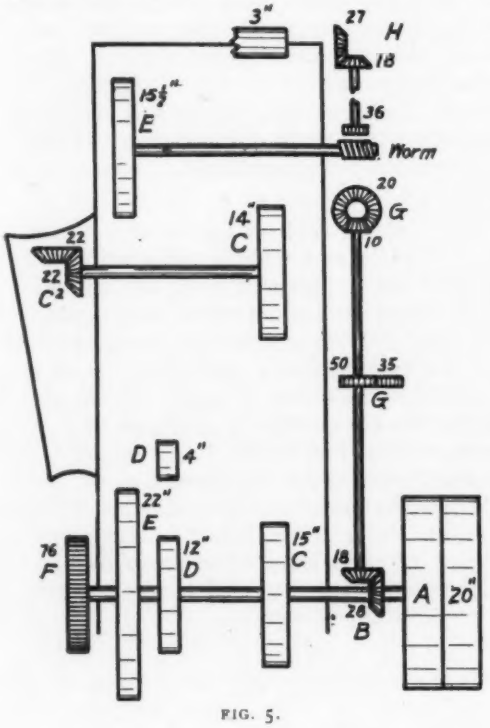


FIG. 5.

We will now examine the construction and functions of the various working parts, commencing with the filling heads. These are two in number and in their action copy very closely the movements of the hand and arm of the old hand comber. Fig. 6 shows a front and side view of the filling heads. The parts are designated as follows: A, worm; B, brass wheel geared into the work; C, rack for raising or lowering the filling heads; D, delivery rollers; E, regulator bar for setting filling heads nearer and further from the carrying circle; G, bevel wheels for delivery rollers; H, hollow square brush to keep slivers from splaying during the delivery to the circle; X, eccentrics on shaft.

On the main shaft two eccentrics are fixed at the point corresponding to the human elbow. The outer edge of each eccentric

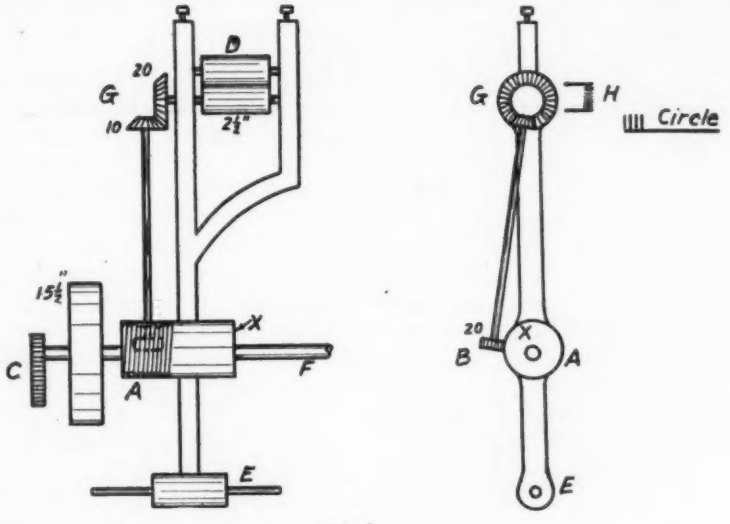


FIG. 6.

forms a worm into which is geared a brass wheel for driving the delivery rollers. So the eccentric not only gives the lashing motion, but also regulates the amount of wool delivered by the rollers. The reason why a brass wheel is used is that owing to the strain there is much wear and tear and as it would be difficult to replace a worm the wheel is made of this soft metal. When wear does take place the wheel can be changed in a few moments by simply removing a nut, putting on a new wheel and refastening the nut. The shaft bracket is fixed in the wheel and the rack bearings, C, as are also the brackets of the steadying shaft, E. This combination enables the filling heads to be either raised or lowered or drawn backward or forward as required.

(To be continued.)

ENGLISH NOTES.

(By Our Special Correspondent.)

Merchants and agents were incredulous about the proposed stoppage of Lancashire looms for a fortnight. They knew that under enough provocation spindles could be stopped to rearrange supply of raw cotton and demand for yarn. But that 350,000 or 450,000 looms could be idle for a fortnight to readjust the relation between prices of cloth and yarn was reckoned improbable. They said, "Burnley will never stop," but Burnley, the largest weaving town in the world, has stopped and has confounded the skeptics. One week has been dropped out of the working year, beside the regular holiday week. Six days more are to be cut out before the end of October and other weaving towns are loyal to their Association.

The weaving mills can have any quantity of orders, but on them there is no mentionable profit. Spinners get both orders and profits, and the less a spinner thinks of his reputation and the fewer "points on" he pays for spinnable cotton, the more money can he make. The two weeks of play are intended to bring yarn prices down and to stint the cloth market and help cloth prices up. Even were spinners to do anything so improbable as to stop spinning out their present margins it is believed that the effect on the cloth market would be generally wholesome. However, Lancashire cannot pay 16 cents for cotton, a 10-cent margin between cotton and twist to the spinner and sell all the regular cloths of the trade. Typical plain goods of a barometrical sort were, prior to the stoppage, just 10 per cent. dearer than the utmost limit at which steady sales have ever been known. Thus it is seen that even the weaving worm will turn and that the cotton trade of Lancashire becomes a marvellously organic whole.

* * *

Users of the coal tar colors were threatened a while ago with an advance in the price of tar, consequent upon the enlarged employment of that material in making dustless roads. The prospect is changing. If half the anticipation is realized the basis of dyestuffs will become cheaper. Contingent on the success of various processes of making smokeless fuel by the distillation of coal at low heats, illimitable quantities of benzales will be poured on the market. There is no certainty. There is just enough apprehension of extended production to counterbalance our fears that coal tar is going to be unpleasantly dearer.

* * *

As the trade in mohair luster linings and dress goods is being taken seriously in America a glimpse at the profits made by Wm. Fison & Co. of Bradford may not be unwelcome. From a plant worth $651,000 (inclusive of land, buildings, houses and water rights), the average return during 13 years has been $101,700 after charging depreciation. The extreme range of profit has been from $190,000 in 1895, when mohair doubled in value, to $58,000 in the Dingley tariff year. During eight years past the profits have maintained the general average. This mill is one of the very few in England which derives power from water turbines—only one-fifth of the load is carried by steam.

* * *

Lighting is a matter that has been carefully studied in the construction of our new mills, of which the fronts are largely glass. In the old mills the aim was rather to make a window that nobody could see through than one that would admit light. One who

has compared mill windows in three countries reports that factories are better lighted in Germany than in England and better in England than in America. "A bad light," Shadwell writes in his "Industrial Efficiency," "is the most conspicuous defect of American factory premises." In Germany he never saw an ill-lighted workroom, he found buildings well spread out and observed that textile mills have rarely more than three or four stories.

* * *

The loss upon goods damaged in process, or cancelled by reason of delay, falls with heaviness on the commission manufacturer. The loss is one that the syndicated piece-dyers have sought to minimize, both by resisting claims and making improved arrangements for the marketing of spoiled goods. A job department, under the care of a manager at $2,000 a year, who is experienced in the odd-lot business, is maintained by the Bradford Dyers' Association. The combine steadfastly refuses to allow its dyeing customers to debit damaged cloths at a profit and the manager's exclusive business is to make the utmost of the "cold pig." This he does by persistent attention to the London and Manchester dealers and clothiers who utilize job goods and short lengths.

* * *

In a Bradford dress-goods mill, somewhat noted for cheap fancies, the search for novel yarn effects is carried out in a singular way. An old spinner has for his sole duty the redoubling of any odd lengths of yarn he can find. His days are spent in combining singles with four-folds, two-folds with three-folds and so forth, as fancy prompts him. He uses the colors and threads in the greatest possible number of ways and sends the samples in skeins to the salesman-designer. The latter goes through them to find a peg on which to hang an idea. And from time to time combinations have been hit upon which have helped the profits of the season. The system looks a little accidental, but it has the merit of bringing fresh effects at no expense save in labor.

Among worsted spinning overlookers a frequent topic of debate is whether a man is better for having been trained in a large mill or a small one. Opinion inclines toward the small mill in which an overlooker has to be at least half a mechanic, to be self-reliant and exercise foresight. In the event of machinery going wrong in any way in the large mill it is the overseer's duty to send for a mechanic and leave rectification to him. In the small mill the overseer has to apprise himself of trouble before it occurs. To avoid worse to follow, he sees keenly to lubrication and makes advance repairs in order to lengthen the life of any part that is shaky. The argument is that the small mill produces a wider type of mind. The man trained in it has closer interest in everything that concerns his work and the man from the large mill—if he is like many—takes care not to know anything outside his narrow range of duty. The comparison is not universally just, but where labor is far subdivided an indolent turn of mind toward the accessories of one's own work is more encouraged. "It's not my job" is frequently on the lips of the man tied to one operation.

* * *

The tendency is to equip textile schools more handsomely and schemes are afoot to spend $200,000 at Bradford and $350,000 at Leeds. Huddersfield has just refused to vote $20,000 for the extension of its textile college and apparently on a point of principle rather than of economy. The view accepted is that the school should teach service rather than practice. The fear is that by dint of continual extensions the town will have a municipal mill upon its hands which, like some schools in Germany, will have to sell its products in the market. The competition might not be serious, but to make a school a commercial undertaking is to undermine its educative value. At present, Huddersfield says that the school is to teach what the mill does not and in saying so the ratepayers' representatives are possibly not uninfluenced by the thought that their policy will save money.

* * *

The Bradford Conditioning-House, after

the recent scandals, invites a renewal of confidence. An advisory committee of traders along with the city corporation are supervising the work of the institution. A new manager has been appointed and Bradford wool people are trying to forget that false certificates of condition ever were issued. Especially on the Continent the scandals have done untold harm to Bradford's reputation. The Conditioning-House is now on its mettle and the control is conscious that it has something to live down.

In Manchester the Testing-House is the property of the Chamber of Commerce. Privately-owned conditioning houses have existed abroad, but after the shock received at Bradford, the wool trade of Europe looks with suspicion on any certificates that are not borne out by the condition of the material when it is delivered.

* * *

The effect of a recent legal decision already reported here has been to say that the permissible percentage of moisture in cotton yarn is 8 per cent. Spinners and manufacturers have had to determine whether they would contest that ruling and allow the courts of appeal to give this limit some of the force of law. Wisely they have declined the encounter and their own associations will endeavor to establish for themselves a scale of "condition." In view of the Oldham judgment efforts have to be made to adjust the whole question of damp in raw cotton and in yarn.

* * *

The answer to an inquiry as to what the "Youla" process is, must be that the latter is a mystery. The treatment is more effective and costs more than the usual willowing and rather less than carbonizing. It is a secret, unpatented, mechanical process used primarily for clearing wool of seeds and dirt and also for cleaning cotton waste. There is some talk of employing this means of cleaning wool in the wool-growing countries—so saving freight. Machines are not sold or exhibited, but work on commission in Bradford, Rochdale and Roubaix.

* * *

Among French dress goods which have been bought well for the winter season is an ingenious cloth at around 30 cents of the fancy Amazon type. Warp and filling are in three colors forming large tartan checks and the warp is to the face. The cloth is teazled and this raising, besides disguising the fabric, produces a very pleasant rainbow effect running warp-ways. Colorings vary, but in a typical pattern blue melts into brown and brown into green rainbow-fashion across the width. A pattern of this skirting is to be seen at the Textile World Record office.

GRINDING CARD CLOTHING.

BY ROSCOE MANNING.

Card clothing requires a great deal of care and attention in order to ensure good work, and as the direct care of the cards is in the hands of the grinder much of the responsibility for the difference between good and poor yarn rests with him.

A good grinder must be a good manager of help and be able to discern the difference between a good and a poor stripper. He must also possess tact to enable him to get along with his men and get the best out of them with the least possible amount of friction. Then he must be able to acquaint himself with the peculiarities of each card he grinds. By this I mean he must know if he has any soft wire that will be liable to hook if he puts the grinding wheels on too hard; on the other hand he should note and remember the cards that have wire on that has been tempered too hard, and that requires the grinding wheels to be set down very hard to make an impression on the point. I have seen cards ground so lightly on hard tempered steel wire that after grinding a whole day and then being set up they looked no better than before they were ground. Although an advocate of light grinding, I have had these cards taken down again and the grinder set down fairly hard to get a point on that would stay without hooking the wire. When the card was set up again it did good work.

The grinder must also be able to set his cards as close as possible without facing or taking the point off the wire. He need not

use a 5/1000 gauge but he must be able to tell if the fillet is a trifle loose and on account of the centrifugal force of the cylinder whether the fillet is liable to raise a little. A 7/1000 gauge might be all right for one card, where the fillet was on good and tight; on another card, he might have to use a 10/1000 gauge to keep the wire on the cylinder from rubbing against the wire on the flats.

Good grinders are scarce. Why? Twenty-five years ago, cotton mill operatives were mostly English, Irish, Scotch, Germans and Americans. These people

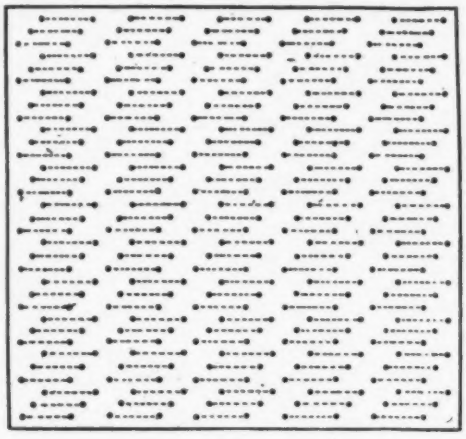


FIG. 1.

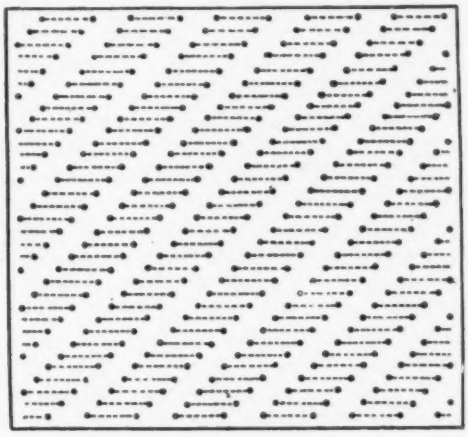


FIG. 2.

were mostly mill operatives from childhood, and advanced from one grade to another as they grew older. A boy went into the card room as a sweeper or alley boy; during his spare time he would learn to run drawing frames or railway heads, knowing that if he became proficient he would be promoted, with a corresponding advance in wages. When a railway or drawing boy he would learn to strip cards and the stripper would sometimes strip two or three years, during which time he would learn to grind, and when he got his section of cards he would be a good grinder.

What are the conditions today? French Canadians took the places of the English speaking people. Poles, Italians, Greeks and Portuguese have in different localities supplanted the French Canadians. A good many of these people have not enough ambition to try to learn the English language, and the ones who do have any ambition will not strip cards long enough to learn to grind, consequently we have no material to draw from. Of course we have the young men from the textile schools who are always anxious to learn to grind, and get other practical experience, but by the time they have worked as assistant grinder long enough to do that job fairly well, they think they ought to get a job as second hand somewhere.

The selection of good card clothing is an important item in a mill. In order to do this successfully one must know what the conditions are to be as regards stock, speeds and the use of the manufactured article. No matter what we are going to card we must have a good foundation. I should want four layers of cotton and wool or cotton and linen for the foundation of my cylinder and doffer fillets.

The difference between the numbering of the American and the English clothing is shown in the following table:

American No. of Wire.	Points Per Sq. Foot.	English Counts.
28	43200	60s
30	50400	70s
31	57600	80s
32	64800	90s
33	72000	100s
34	79200	110s
35	86400	120s
36	93600	130s

Cylinder and doffer fillets are made up of what is known as rib set clothing. Top flats

are sometimes, but not always, set in a twill. Fig. 1 is a plain or rib set. Fig. 2 is a twill set. Each of these rows of wire is called a crown. In Fig. 1 there are four crowns to the inch in the width of the fillet. Each of the sets of three wires that are arranged diagonally is called a nogg and in one crown and one nogg there will be 6 points, each wire having 2 points. In Fig. 1 there are four crowns or 16 noggs to the inch. To find the number of points to the square foot we figure as follows:

4—crowns per inch
16—noggs per inch
—
64
3—teeth in one nogg
—
192
2—points in one nogg
—
384
144—inches in a sq. ft.
—
1536
1536
384
—
55,296—points in one sq. ft.

Fig. 2 represents a twill set, and the method of finding the number of points per square foot is the same as in a plain set.

FILLET FOR CYLINDERS AND DOFFERS WITH 4 CROWNS OR 24 POINTS PER INCH.

Noggs per inch.	Points Per Sq. Foot.	American No. of Wire.	English Counts.
16	55296	31	80s
17	58752	"	"
18	62208	32	90s
19	65664	"	"
20	69120	33	100s
21	72576	"	"
22	76032	34	110s
23	79488	"	"
24	82944	35	120s
25	86400	"	"
26	89856	36	130s

The exports of cotton manufactures from Manchester to the United States in 1906 were as follows: Piece goods, $4,942,078; cotton worsteds and worsted stuffs, $101,167; cotton, velvets, fustians, etc., $603,609; yarn and thread, $2,167,115; a total of $7,813,969, and an increase over 1905 of $1,732,860.

ORGANIZATION SHEETS FOR COTTON MILLS.

BY B. M. PARKER.
Assistant Professor in Textiles, West Raleigh, N. C.

In estimating an organization sheet or working program of drafts, weights, speeds, production, and number of machines for a cotton mill, several important points have to be dealt with.

In planning for a new mill the question of capacity and number of machines is not very difficult, but in planning for an old mill, the most desirable combination of drafts, doublings and speeds have sometimes to be abandoned and a less satisfactory arrangement resorted to in order to increase the production of some one class of machines and, by so doing, increase the total production.

There is considerable range to drafts, weights and speeds on all classes of mill machinery and there are probably no two mills on the same class of goods that have identically the same program all through the different processes.

Aside from the capacity and proportions of the machines available, the most important considerations are the numbers and qualities of the yarns made and the uses to which they are to be put. The finest numbers of yarn and the better qualities of hosiery yarns demand a long combed stock and a large number of doublings. Coarse yarns for weaving do not require such stock and the number of doublings is decreased. All yarns for knitting, where a good quality is desired, should be spun from combed stock using the mule, with double roving and slack twist, as this tends to greater evenness and regularity.

There is a very great diversity of opinion in regard to the use of single roving. Many mills on print cloth, using 28s warp and 32s filling, spin both from single roving; some spin both from double roving, and others use double roving on warp, on account of the added strength, and single roving on filling. If evenness is desired in coarse yarns, double roving is often used and also in some cases to save making roving of a different size. As filling does not require so much strength as warp, it is often spun from single roving and

the warp, of about same size or coarser, is spun from double roving.

In spinning 20s and under the intermediate roving frame is often thrown out and longer drafts used, while for finer yarns, say 60s and over, a fourth roving frame is used.

It is always desirable to have as few sizes of roving as possible in making yarns of different numbers, and it often happens in mills making a range of numbers, that longer and shorter drafts than are customary are used. The amount of draft at the various machines also depends upon the stock being used. Long staple cotton will admit of more drafts than short staple cotton, and as a rule the draft increases as the bulk decreases. In figuring a program where there are no severe limitations, average drafts in each case would be assumed, varying these slightly to bring the roving to standard sizes, remembering that, within reasonable limits, the heavier the sliver and the rovings and the longer the drafts, the smaller the amount of machinery necessary to produce the required amount of roving.

It is not possible to follow a program of weights and numbers exactly, but where any degree of care and accuracy is taken in working it out, the actual results obtained will not vary greatly from the figured program.

Below is given a program for 60s yarn, using four processes of fly frames without combers. The drafts are all easy and this should give excellent results in actual practice.

PROGRAM FOR 60S YARN.

Four processes of fly frames. No combers. 120 yds 60s yarn weigh 16.66 grains.

Allowing a contraction in length of yarn of 3% due to twisting: then

16.66÷1.03=16.17 grains as weight of yarn as it leaves the rolls of the spinning frame.

Spinning frame draft 10.3. Double 2.

$\frac{16.17 \times 10.30}{2}$ = 83.3 grains, wt. of 120 yds. jack roving.

83.3÷10=8.33 grains, weight 12 yds. jack roving = 12 hank roving.

Jack frame draft 6.82. Double 2.

$\frac{8.33 \times 6.82}{2}$ = 28.40 grains, wt. 12 yards fine roving = 3.5 hank roving.

Fine frame draft 5.83. Double 2.

$\frac{28.40 \times 5.83}{2}$ = 82.78 grains, weight 12 yds. intermediate roving=1.20 hank roving.

Intermediate frame draft 4.8. Double 2.

$\frac{82.78 \times 4.8}{2}$ = 199 grains, weight 12 yds. slubber roving = .5 hank roving.

Slubber draft 3.6. No doubling.

$\frac{199 \times 3.6}{12}$ = 59.7 or 60 grains per yd., weight of drawing sliver.

Drawing frames draw six and double six at each process, giving a card sliver of 60 grains per yard.

Draft of card 97. Allow 5% for waste.

$\frac{60 \times 97}{.95 \times 437.5}$ = 14 oz. lap from finisher picker.

Having worked out a suitable program of weights and drafts, the next step is to estimate the production required at each stage of the operation. In getting these figures we must allow a certain percentage at the different machines for waste and stoppages. It would be impossible to produce the same number of pounds of yarn as there were pounds of card sliver, as every frame the material passes through makes some waste, due to breakages, etc., hence it is imperative to start with more pounds of cotton than the required number of pounds of yarn. After this allowance in the production is made there should be a certain allowance at each process for loss of time while doffing, oiling, etc. These amounts vary with different machines and also with the same machine on different classes of work. It is not possible to make a fixed allowance for each operation, but a fair average can be estimated from actual results. After this average allowance has been provided for, any discrepancy in production can be easily overcome by raising or lowering the speeds where needed.

It is not the best policy to use extra large machines in spinning and roving or very small ones. In the former case the loss of time while doffing, etc., is increased, and in the latter the cost of production is increased. It is not well to use excessive speeds anywhere as, by so doing the quality of the product is impaired and the percentage of breakages increased, thus increasing the time lost and the percentage of waste made.

In getting the figures which follow I have endeavored to strike a good average all the way through, without excessive speed or production, which will give a good, smooth, strong yarn at the spinning with the minimum of stoppages and waste.

We will assume that we want a production of 25,000 lbs. of 60s yarn at the spinning frames and, using the table of drafts and weights previously worked out, will find the

number and capacity of the frames at each process, making sufficient allowance for waste and stoppages:

SPINNING FRAME.

Production required, 25,000 lbs. of 60s yarn per week. Speed of spindles, 10,000 r. p. m. Time run, 58 hours. Allow 5% for loss of time and waste.

$\sqrt{60} = 7.74$; $7.74 \times 4.5 = 34.83$ turns of twist per inch.

$$\frac{10{,}000 \times 60 \times 58 \times .95}{34.83 \times 36 \times 840 \times 60} = .539 \text{ lbs. per spindle per week.}$$

$25{,}000 \div .539 = 46{,}382$ spindles required.
Spinning frames, 204 spindles each; then
$46{,}382 \div 204 = 223$ spinning frames.
This leaves a shortage of 10 spindles in the total number, but it is too small to be taken into account.

Note that in this calculation 4.5 has been used as a twist multiplier instead of the standard 4.75, as experiments made by the writer tend to show that this used as a multiplier, all other conditions being the same, will give a stronger yarn. It is common to use 4.75 as the multiple for twist and this change would effect the production but slightly.

JACK FRAME.

The waste between the jack roving and yarn will probably not run much over 1 per cent. and the time allowed for stoppages for doffing, oiling, etc., will not be much over 6 per cent., so in order to get a production of roving sufficient to keep the spindles running we must make these allowances and figure for correspondingly heavier production.

Production of spindles 25,000 lbs. of yarn; then,

$25{,}000 \times 1.01 = 25{,}250$ lbs. produced by jack frame.

Speed of flyer, 1,500 r. p. m. Hank roving 12. Size of bobbin $5 \times 2\ 1/2$.

Twist per inch, $\sqrt{12} \times 1.2 = 4.15$ turns per inch.

Allowing the 6 per cent. loss of time due to stoppages on the jack frames, the following calculation gives the production in pounds per spindle per week of 58 hours:

$$\frac{1{,}500 \times 60 \times 58 \times .94}{4.15 \times 36 \times 840 \times 12} = 3.25 \text{ lbs. per spindle.}$$

$25{,}250 \div 3.25 = 7{,}769$ jack spindles.

Dividing this into frames of 176 spindles each will give 44 frames, with 25 spindles short; this small number can be disregarded.

FINE FLY FRAME.

Spindle production, 25,000 lbs. Allow 2 per cent. for waste between fine roving and yarn; then

$25{,}000 \times 1.02 = 25{,}500$ lbs. per week of fine roving.

Speed of flyer, 1,200 r. p. m. Size of bobbin, $7 \times 3\ 1/2$. Hank roving, 3.5.

Twist $= \sqrt{3.5} \times 1.2 = 2.24$ turns per inch.

Loss of time while doffing, etc., 10 per cent.

$$\frac{1{,}200 \times 60 \times 58 \times .90}{2.24 \times 36 \times 840 \times 3.5} = 14.2 \text{ lbs. per week per spindle.}$$

$25{,}500 \div 14.2 = 1{,}796$ spindles.

Twelve frames of 152 spindles each will give only 28 spindles more than the calculated number and this is not large enough to be taken into account.

INTERMEDIATE FLY FRAME.

Spindles produce 25,000 lbs. Allow 4 per cent. for waste between intermediate roving and yarn; then

$25{,}000 \times 1.04 = 26{,}000$ lbs. required of intermediate spindles.

Speed of flyer, 950 r. p. m. Size of bobbin, $9 \times 4\ 1/2$. Hank roving, 1.20.

Twist $= \sqrt{1.20} \times 1.1 = 1.22$ turns per inch.

Loss of time 15 per cent.

$$\frac{950 \times 60 \times 58 \times .85}{1.22 \times 36 \times 840 \times 1.20} = 63.4 \text{ lbs. per spindle per week}$$

$26{,}000 \div 63.4 = 400$ spindles.

Four frames of 102 spindles each $= 408$ spindles.

SLUBBER.

Spindle production, 25,000 lbs. Allow 8 per cent. for waste between slubber roving and yarn; then,

$25{,}000 \times 1.08 = 27{,}000$ lbs, required of slubbers.

Speed of flyer, 650 r. p. m. Size of bobbin, 12×6. Hank roving, .5.

Twist $= \sqrt{.5} = .7$ turns per inch.

Loss of time due to doffing, etc., 25 per cent.

$$\frac{650 \times 60 \times 58 \times .75}{.7 \times 36 \times 840 \times .5} = 160 \text{ lbs. per spindle per week.}$$

$27{,}000 \div 160 = 181$ spindles.
Three frames of 60 spindles each $= 180$ spindles.

DRAWING FRAMES.

Spindles produce 25,000 lbs. Allow 12 per cent. for waste; then,

25,000 × 1.12 = 28,000 lbs. required on draw frames.

Three processes drawing.

Front roll speed, 350 r. p. m. using metallic rolls, 32 pitch, 1 3/8 inches in diameter. Weight of sliver, 60 grains per yard.

1.375 × 3.1416 = 4.32 circumference of front roll if using leather rolls, but with metallic rolls, the circumference must be 33 per cent. more on account of the crimping action of the flutes in metallic rolls; then

4.32 × 1.33 = 5.75 inches delivered by each revolution of metallic rolls.

$$\frac{5.75 \times 350 \times 60 \times 60 \times 58 \times 85}{36 \times 7{,}000} = 1{,}416 \text{ lbs. per delivery per week.}$$

28,000 ÷ 1,416 = 19.4 deliveries.

Five frames of 4 deliveries each for each process.

CARDS.

Spindle production, 25,000 lbs. Allowing 12 per cent. for waste, the cards will have to make 28,000 lbs. per week.

Loss of time, 10 per cent. Weight of sliver, 60 grains. Diameter of doffer, 27.75 inches outside clothing. Doffer speed, 10 r. p. m.

$$\frac{27.75 \times 3.1416 \times 10 \times 60 \times 58 \times 60 \times .90}{36 \times 7{,}000} =$$

650 lbs. per week per card.

28,000 ÷ 650 = 43 cards.

PICKERS.

Spindle production, 25,000 lbs. Allowing 18 per cent. for waste, the pickers will have to make 29,500 lbs. per week.

9 inch lap roll running 8 r. p. m.; 14 oz. lap. Loss of time, 20 per cent.

$$\frac{9 \times 3.1416 \times 8 \times 60 \times 58 \times 14 \times .80}{36 \times 16} = 15{,}306$$

29,500 ÷ 15,306 = 2 finisher pickers.

It will be noticed that in getting the twist for the slubbers and intermediates the standard multiple of 1.2 was not used, but a lower twist put in. This was because the use of longer staple cottons necessitates a reduction in the amount of twist put in the roving so the following frames will draw the roving easily. The twist multiple of 1.2 is based on general usage with short cotton and will hold good in most cases, but as 60s yarn requires a staple of about 1 1/4 inches it is not necessary to run so much twist in the roving. The longer the staple of the cotton used the less the amount of twist. This reduction of twist will tend to increase the production on those frames.

In attempting to run the foregoing program with the equipment worked out, there will, in all probability, be some discrepancies that will cause a little trouble, but none that cannot be overcome by readjusting some of the speeds, etc. There should be a certain amount of elasticity in every program, as the loss of time varies with the efficiency of the operatives and the quality of work done, as well as the speed used; the production likewise varies from the same causes. Reducing the speed of fly frames will often increase the production from the fact that there will be a less amount of lost time due to breakage of the roving, etc. I have had this experience several times while running coarse work.

In many cases higher and lower speeds than those given are used with good results; greater and less productions obtained, more and less time lost by stoppages, etc., but the allowances made and the results obtained as given here are such as can be equalled and in many cases exceeded, by any well-organized and well-managed mill.

INVISIBLE WASTE IN THE PICKING ROOM.

BY J. F. M.

Referring to Sandy Adams' question on this subject in a recent issue, I should say that 6 per cent. invisible waste in the picker room was excessive. I should expect not more than 1 to 2 per cent. on such stock as he referred to. It is quite difficult to make a test for a short time and get near to actual results, as the working test is the only one to be relied on; that is, the total amount run each week for several weeks.

There is quite a variation in the amount of waste taken out in pickers, without making any change whatever in the stock or machines. We find that the stock this year is very dusty and there is more dust and invisible waste in the room than usual.

With 1 1/8-inch stock, F and G grade, I should say that the waste made in hopper

feeder, trunks and first and second beater breakers should be 7 per cent.: 2 to 3 per cent. invisible; 4 to 5 per cent. motes. The motes after being run through the picker seed cleaner should be 70 per cent. dirt at least.

We realize that the stock has a great deal to do with the amount of waste that should be taken out of it. For a finisher picker with two beaters I should say that from 1 to 2 per cent. of invisible waste and 2 to 3 per cent. of motes, would be good, or a total of 3 to 5 per cent. The waste taken out with hopper feeder (with spiked beater) and trunk, two beater breakers and two beater finishers, would be 11 per cent. waste with Atherton pin bars set 3/4 inch from feed roll. We set our grids as shown at Fig. 1, which gives

FIG. 1.

them high cleaning power. As to the waste in the following processes it is governed very largely by the stock.

The cards would take out 5 per cent. waste for medium counts and there is quite a per cent. of invisible waste here also. From 5 to 1 per cent. ordinarily with 3 per cent. strips, 2 per cent. motes, 1 per cent. fly under screens, etc. The other kinds of waste depend very largely on how the work is run, the management of the room and the help we have to work with, and is always an important matter to look after.

The idea of all cleaning machinery is to get the most dirt and the least fibre out of the stock. With the Atherton grids we are getting 80 per cent. dirt and only 20 per cent. lint from our picker seeds, which is good. We could change this by changing the settings, but we are getting a good per cent. of dust out of the stock, and the lint is very pure indeed and would have to be taken out in the processes.

We find a loss of 20 to 25 per cent. from bale to finished roving on carded work. This is as follows:

Bagging and ties	4 per cent.
Openers, feeders, etc.	3 per cent.
Each process of pickers	4 per cent.
Cards	6 per cent.
Sweepings, etc.	3 per cent.
Total	20 per cent.

DEGUMMING SILK.

A Swiss process for degumming silk, recently patented in this country, consists in treating the silk with steam and soap lather. This softens the sericin which can then be removed by rinsing the silk in water. The inventor describes the process as follows for degumming 220 pounds of raw silk:

The skeins are hung on removable rods in the upper part of a vessel containing about 150 gallons (1,250 lbs.) of water in which 72 pounds of soap have been dissolved. The vessel is not closed tightly and the silk is so hung as not to come in contact with the liquor. The soapy water of the vessel is then heated by steam or otherwise to the boiling point in order to transform this water into lather, which will rise in the vessel along the hanks and envelop the material at all parts. This subjects the hanks to the combined action of steam, hot air and soap-lather, the effect of which is to soften and render soluble the sericin envelope. The transformation of the soapy water into soap lather may also be aided by injecting air under pressure into the soapy water contained in the vessel. In about thirty-five minutes the sericin envelope will be sufficiently softened and rendered soluble. The hanks with their holders are then removed from the vessel and washed in water. By this first washing about four-fifths of the sericin envelope will be removed, and the removal can be completed by a second treatment with soap lather, followed by a second washing. Very pure sericin solutions are thus obtained, which can be ultimately employed for dyeing purposes.

The advantages claimed for the new process are:

First. The degumming is made in a shorter time; for certain grades of silk, in a few minutes.

Second. As the continuous moving of the silk in the soap water is avoided—that is to say, as the silk is not drawn to and fro and up and down and is not whipped by the soap water—the filaments are undisturbed. They remain compact and no fluff is produced, and, consequently, the raw silk treated by the new process can easily be rereeled after the degumming.

Third. The hardened silk lime which is often produced in drying is dissolved by this process, which was absolutely impossible with the old process.

WARPER PRODUCTION.

The Draper Co., Hopedale, Mass., have recently issued a circular in regard to warp production, in which they state that the tables of warper production printed in their various catalogues have always been based on the old standard 18-inch cylinder warper, requiring considerable figuring to adapt the tables to later machines. They now not only build warpers with various sizes of cylinder, but complicate the problem by adapting the cone drive to all of them. To avoid the long series of tables that would meet every possible variation in practice, they have prepared one theoretical table and give rules by which to determine any individual requirement. As the hours of labor vary in different mill sections, the table is worked out on an hour basis. The former table was based on the assumption that the warper would be stopped one-third of the time. The new table is based on a supposedly continuous run, allowing each to figure out the time actually lost in his own regular practice, or in the practice of mills similar to his own. If the speed of the mills is variable, as often happens with water-driven mills, allowance must, of course, be made, and a proper average speed used in the calculations.

The following rules show how the table itself was prepared, and how to figure results without the table.

To find the production of a warper at any given speed without use of tables.

Rule: Multiply the number of the yarn warped by 840 to find the number of yards per pound; divide this into the yards per hour at speed chosen:

Example: Speed, 50 yards per minute, No. 20 yarn; 410 ends on beam; what is product per week of 58 hours, assuming warper to run two-thirds of the time?

$20 \times 840 = 16{,}800 =$ number of yards of No. 20 yarn in one pound.

$50 \times 60 = 3{,}000 =$ yards per hour at speed of 50 yards per minute.

$3{,}000 \div 16{,}800 = .1786 =$ pounds per hour warped of one strand of yarn.

$.1786 \times 410 = 73.226 =$ pounds per hour of full warp.

$58 \times 2 = 116 \div 3 = 38.66 + =$ hours per week of warper run.

$73.226 \times 38.66 = 2830.9 + =$ pounds per week.

Answer.

Number of yarn.	YARDS PER MINUTE.						
	30	35	40	45	50	55	60
6	.3571	.4167	.4762	.5357	.5952	.6548	.7143
7	.3061	.3571	.4082	.4592	.5102	.5612	.6122
8	.2679	.3125	.3571	.4018	.4464	.4911	.5357
9	.2381	.2778	.3175	.3571	.3968	.4365	.4762
10	.2143	.2500	.2857	.3214	.3571	.3929	.4286
12	.1786	.2083	.2381	.2679	.2976	.3274	.3571
14	.1531	.1786	.2041	.2296	.2551	.2806	.3061
16	.1339	.1563	.1786	.2009	.2232	.2455	.2679
18	.1190	.1389	.1587	.1786	.1984	.2183	.2381
20	.1071	.1250	.1429	.1607	.1786	.1964	.2143
22	.0974	.1136	.1299	.1461	.1623	.1786	.1948
24	.0893	.1042	.1190	.1339	.1488	.1637	.1786
26	.0824	.0962	.1099	.1236	.1374	.1511	.1649
28	.0765	.0893	.1020	.1148	.1275	.1403	.1531
30	.0714	.0833	.0952	.1071	.1190	.1310	.1429
32	.0670	.0781	.0893	.1004	.1116	.1228	.1339
34	.0630	.0735	.0840	.0945	.1050	.1155	.1261
36	.0595	.0694	.0794	.0893	.0992	.1091	.1190
38	.0564	.0658	.0752	.0846	.0940	.1034	.1128
40	.0536	.0625	.0714	.0804	.0893	.0982	.1071
42	.0510	.0595	.0680	.0765	.0850	.0935	.1020
44	.0487	.0568	.0649	.0731	.0812	.0893	.0974
46	.0466	.0543	.0621	.0699	.0776	.0854	.0932
48	.0446	.0521	.0595	.0670	.0744	.0818	.0893
50	.0429	.0500	.0571	.0643	.0714	.0786	.0857
54	.0397	.0463	.0529	.0595	.0661	.0728	.0794
60	.0357	.0417	.0476	.0536	.0595	.0655	.0714
66	.0325	.0379	.0433	.0487	.0541	.0595	.0649
70	.0306	.0357	.0408	.0459	.0510	.0561	.0612
80	.0268	.0313	.0357	.0402	.0446	.0491	.0536
90	.0238	.0278	.0317	.0357	.0397	.0437	.0476
100	.0214	.0250	.0286	.0321	.0357	.0393	.0429

TABLE OF WARPER PRODUCTION IN POUNDS PER HOUR FOR DIFFERENT COUNTS.

To use table apply following rules.

To determine product at another speed.

Rule: Look at table for answer given for the same yarn under first column. Divide by 30 and multiply by speed known.

Example: If speed is 52 yards per minute to know product of single strand of No. 18 yarn.

Answer for 18 yarn under first column is .1190.

.1190 ÷ 30 = .003966 +

.003966 × 52 = .2062 + Answer.

To determine product with number of ends on beam, not shown in table.

Rule: Multiply product of single strand at known speed by number of ends.

Example: Given 410 ends on beam find product per hour of continuous running with No. 18 yarn warped at speed of 52 yards per minute.

Find answer for single strands as before = .2062.

.2062 × 410 = 84.542 Answer.

For week of 60 hours with warper running two-thirds of the time the product would be:

60 × 2 = 120 ÷ 3 = 40

40 × 84.542 = 3381.68 Answer.

To find speed of driving pulley on warper to give any desired speed of winding.

First: For warper without cone drive.

Rule: Take assumed speed of winding and reduce it to inches per minute; divide this by circumference of warper cylinder in inches; multiply by known relation of cylinder speed to pulley speed.

Draper warpers have following dimensions and pulley relations:

When without cone drive.	Turns of Pulley to one turn of Cylinder.
C model 18 inch cylinder = 56.549 in. circumference	5.44
C model 20 inch cylinder = 62.832 in. circumference	5.44
E model 12 inch cylinder = 37.7 in. circumference	3.94
F model 32 in. circumference	5.
G model 41.143 in. circumference	4.63
H and I models 48 in. circumference	6.25

Example:

Assume 55 yards per minute as desired speed on an E model warper with 12 inch cylinder; what is speed of driving pulley?

55 × 36 = 1980 = inches in 55 yards.

12 × 3.1416 = 37.7 = inches in circumference of cylinder.

1980 ÷ 37.7 = 52.52.

Note relation of speeds gives 3.94 between cylinder and pulley on E model.

52.52 × 3.94 = 206.93 = turns per minute of pulley. Answer.

To find driving pulley speed when warper is driven by cone pulleys.

Rule: Take assumed speed of winding and reduce it to inches per minute as before.

Divide this by circumference of warper cylinder in inches; multiply by known relation of cylinder speed to pulley speed at the position determined by the belt on the cone. As usually run the average relation would be properly used.

The Draper warpers have following relation of cone to cylinder:

C. model, 18 and 20 inch cylinders 18 inch circumference=56.549 in. 20 inch circumference=62.832 in.	High	8.9
	Average	6.675
	Low	4.45
E model 37.7 circumference.	High	5.89
	Average	4.40
	Low	2.91
F model 32 in. circumference.	High	8.
	Average	6.
	Low	4.
G. model 41.143 circumference.	High	6.66
	Average	5.
	Low	3.33
H and I models 48 in. circumference.	High	8.
	Average	6.
	Low	4.

Example: Assume 55 yards per minute as desired speed and E model warper as before.

55 × 36 = 1980 inches in 55 yards.

Circumference E model cylinder = 37.7 inches.

1980 ÷ 37.7 = 52.52.

If warper is run with belt traveling equally on each side of the centre of the cone the driving pulley will average to turn 4.40 times the cylinder rotations.

52.52 × 4.40 = 231.09 = speed of driving pulley on warper. Answer.

To find size of shaft pulley for given speed of warper pulley.

Rule: Find speed of rotation of shaft, multiply it by 10 (since warper pulley is 10 inches in diameter) and divide product by speed of warper pulley.

Example: Suppose shaft rotates 200 times per minute.

Suppose speed of warper pulley is 231.09 as in above example; what is size of pulley needed on shaft?

200 × 10 = 2000 ÷ 231.09 = 8.65. Answer.

Pulley on shaft should be 8.65 inches in diameter. (Should never be less than 6 inches.)

Pulleys are always 10 inches in diameter.

Outer pulleys 2 inches wide each.

Centre pulley 1 1/8 inches wide.

3/16″ allowed for cracks between pulleys.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Claims After Cutting Up.

Editor Textile World Record:

Some time ago we sold some white canvas to a customer who made it up into shoes. He now claims that the goods were not up to the proper standard and puts in a claim for the value of the made-up goods. We refuse to allow this claim as we contend that he should have made the complaint before the goods were cut up, in which case we would have made him an allowance if we found he was justified in regard to his claim.

What is the rule in the textile trade regarding claims of this kind? As far as our experience goes we find that no commission houses will make an allowance after goods are cut up, unless possibly to hold a customer. Dalton (876).

We believe there is no established rule in the trade regarding whether claims shall be made before cutting up the goods or not. The American Woolen Company are trying to enforce the rule that claims shall be made before the goods are cut. We understand that one of the main purposes of the new American Association of Woolen and Worsted Manufacturers is to establish some rule in this respect. In the absence of any fixed rule of this kind in the trade the practice depends in great measure on the condition of business. If business is good, manufacturers and commission merchants are in a much better position to insist on claims being made before cutting up; in times of bad trade, however, it is the buyer who has the whip hand and he can bring the manufacturers and selling agents to his terms.

Bradford and French Spun Worsted Yarn.

Editor Textile World Record:

What is the difference between Bradford and French spun worsted yarn? Zwirner (852).

Technically speaking there are three different systems of drawing for the manufacture of worsted yarns; namely, open drawing, cone drawing, and French drawing. The first two comprise what is called the Bradford or English system. Either long or short wool is spun by the open system, whereas the cone and French systems are used more particularly for short and medium staple. The important difference in the principle of the different systems is that with the English or Bradford system of drawing a slight twist is put into roving, while in the French system no twist whatever is put into it, the object being to keep the fibres even and straight for spinning.

Sizing for Elastic and Non-Elastic Fabrics.

Editor Textile World Record:

We enclose two samples, one elastic, the other non-elastic. Can you give us a recipe for a starch that will stiffen the feel of the non-elastic sample, also a sizing for the face and back of the elastic sample? We are now using for the elastic sample a combination of gelatine and gum arabic.

Woodland (872).

"Woodland" does not state what kind of a finish he requires on these fabrics, but from his question I assume they are to be made very stiff. For sizing the elastic fabrics the gelatine and gum arabic are all right, and with them a little glue, dextrine, and extract of linseed could be used to advantage. The linseed is to be used only if the goods are required to have a thick, pliable feel not like cardboard. If they are to be very stiff I would advise the use of a mixture made as follows:

10 lbs. dextrine,
15 lbs. glue,
25 lbs. gum arabic,
25 lbs. gelatine,
Water to make 80 imp. gallons (800 pounds.)

Care must be taken that it is not boiled more than one minute. If it is boiled longer than this it will be spoiled. It should also be brought to the boil very slowly. For this purpose the pipe in the mixing tub should be a perforated coil and the steam turned on gradually. If it is a straight blow pipe instead of a coil the mixture will be boiled too quickly.

If the goods are to feel thick and pliable 25 pounds of extract of linseed should be added. This is procured by steeping 25 or 30 pounds of linseed in 35 gallons of water to extract the body from

the seed, which is then strained and added to the mixture. The linseed also tends to give a glossy effect to the goods.

For the non-elastic fabrics I would recommend a solution made of

30 lbs. corn starch,
15 lbs. potato starch,
15 lbs. white dextrine,
10 lbs. Epsom salts.
Water to make 100 imp. gallons (1000 pounds.)

For light fabrics a little blue might be added to counteract the yellow tinge in the starch.

This mixture should be boiled with the same care as the other, otherwise it will be of very little use on the fabrics.

If these recipes do not give the required finish to the goods the stiffness may be increased or decreased by varying the quantities of the different ingredients, care being taken to keep them in the same proportions as given. Horace Kenyon.

Rust Spots on White Woolen Goods.

Editor Textile World Record:

We are having trouble in bleaching white woolen goods with sulphur. Small rust spots of various size appear at intervals; sometimes they are as large as a man's hand and have the effect of a sponge filled with rusty water and dropped on the goods. The goods are bleached in one long length. Rockland (873).

So many different causes might produce the defect mentioned that it is very difficult to give a satisfactory reply. Possibly the spots are caused in the carbonizing process and do not show up until after the goods are bleached.

A number of years ago I had just such a trouble in the mill where I was working. It was a ramshackle sort of place and all the steam and water pipes were old. One morning rust stains like those "Rockland" describes appeared on the goods. We looked for the cause of the trouble, but could not find it. For a few days the goods came clear, then the rust spots appeared again. Then we hunted some more, and after a while we found the cause. I had tied a bag over the water pipe before opening it to dilute the acid bath and pieces of rusty iron about as large as peas had lodged near the valve ready to be discharged when the valve was opened. The spots were generally worse on Monday morning after the shut down over Sunday.

Possibly "Rockland" will be able to trace his stains to the same cause. If he is using steam power to keep the bath at a uniform temperature, this may cause it, on account of the affinity of iron for sulphur. If there is a deposit of iron it would be transferred to the goods. We sometimes had to run the water through the pipe for ten or fifteen minutes to clear the pipe of the deposits. Then of course there may be a large percentage of iron in the water, which would make it worse.

It might also be caused by exposed pillars, beams, bolt heads, nails or other iron connections that have corroded and come in contact with the goods during the process of bleaching. The pipes should be covered at once, if exposed. If the trouble occurs early in the week or even early in the morning, it can probably be traced to the pipes. If the water or sulphur used in bleaching contains iron, it would be in such minute quantities that it could not produce the effect complained of, and in any case it would be more evenly distributed. Charles Aitkin.

Grades of Silk.

Editor Textile World Record:

Please give me some information of the different qualities and grades of silk; also of the processes of dyeing and weighting silk. What is the amount of weighting different silks will stand, and what is used for weighting? Palmer (840).

These questions cover a wide field and a book would need to be written to cover them fully. An article in another part of this issue will give some of the information required.

Typewriter Ribbons.

Editor Textile World Record:

I would like to secure some information in regard to typewriter ribbons. Are they manufactured in this country, and if so, by what mills? Is this cloth imported? Can you give the organization of a mill manufacturing these ribons? .
Aberdeen (903).

Typewriter cloth may be obtained from S. Sherman & Sons Co., Dept. H. Hilker, 62 Leonard Street, New York. We are informed that most of the cloth is imported, the duty varying with the construction of the goods. For ordinary quality the duty is 5 cents a yard with an ad valorem duty of 40 per cent. if the cloth is valued at more than 12 1/2 cents a pound; if less than 12 1/2 cents the ad valorem duty is omitted. Some time ago we analyzed a sample of the ribbon cloth with the following results:

Warp, 136 threads per inch, No. 75.
Filling, 129 threads per inch, No. 108.
Weight, 7 7/9 yards, 36 inches wide, per pound.
Weave, plain.

The manufacture of the ribbon from the cloth requires special machinery and the various manufacturers surround their methods with a great deal of secrecy.

Carded Woolen Hairlines.

Editor Textile World Record:

We are making some carded woolen hairlines. The ground work is black or some dark color, while the lines are made by introducing a light shade, generally a black and white mixture. We are having a great deal of trouble with irregularity in the mixed yarn, which causes the goods to appear spotted and streaked. Can you give me any advice regarding the manufacture of these goods? If we do not succeed in remedying the difficulty we shall have to give up making them.

Sedal (875).

There is no class of goods in which defects or irregularities in the yarn show more plainly than in hairlines. Yarn that makes perfect serges, cheviots or fancy cassimeres would result in unmerchantable goods if woven into hairlines. For this reason the severest test that yarn can be subjected to is to use it in hairlines. "Sedal's" difficulty unquestionably arises from imperfect yarn, and the remedy is to be found in the use of a more uniform yarn, particularly for the mixed thread that makes the line. The following experience related by a veteran carder illustrates the difficulty in making hairlines:

"In the spring of 1877 I took charge of the carding for the Blackstone Woolen Co., at Waterford, R. I. Richard Waterhouse was superintendent, Joseph Ashworth, designer; Jim Bacon, boss spinner; Jack Greenhalge, boss dresser; Pat Lynch, boss weaver, and James Murray the dyer. One afternoon I was summoned to the finishing room; the boy who gave the message said that Mr. Waterhouse and all the bosses were down there. I wondered what was up, for it was unusual for me to be called to the finishing room, but I went down and found them all there except the dyer. Mr. Waterhouse spoke up and said they had a puzzler and not one of them was able to solve it. I asked them what the trouble was and he showed me a kind of hairline pattern in which the line would be very plain for perhaps two yards or more and then be very light. Pat Lynch said there was nothing about a loom that he knew of that could make it that way. The boss dresser said he didn't notice anything particular about the yarn except that it worked well. Jim Bacon, who had been boss spinner in the same mill for thirty-five or forty years, said he didn't notice anything in the spinning except that it spun well, and when yarn spins well the spinners won't bother themselves much. Mr. Waterhouse then asked me what I thought about it. I told him the defect was plain to be seen, though I didn't know just what was doing it, but if we could find out what card it came from and on what mule it was spun, we could tell. We looked up the lot ticket and then I went up to the spinning room and asked the boss spinner which mule was spinning that lot. It was a light brown and white 5-run mixture. We watched the mule a few draws and then I noticed that the roving came off the spools light and heavy every two or three feet. I saw at once that the trouble was in the finisher card. I told Jim I saw what the trouble was and I went down to look the card over. The trouble was that the last lot on the card before the 5-run was a 3-run lot and the second hand had neglected my order to reduce the feed rolls four teeth on the Apperley feed for the 5-run. This made the feed apron run too fast for the size of the drawing, leaving an open space between each drawing and making light and heavy places in the roving. The drawing was also twisted a little too hard. The whole trouble was caused by the stock not being packed close enough on the Apperley feed. Little things cause big troubles."

Sam Driver.

Size of Roving.

Editor Textile World Record:

What hank roving is used in making 26s, 28s, 32s and 36s cotton yarn, using one-inch American cotton? What hank rovings are best suited for various numbers of yarn? Seattle (894).

I would say that for the 26s and 28s from single roving, about a 2.6 to 2.8 hank could be used with good results. If the yarn is to be spun from double roving, about 5.00 to 5.2 hank may be used, depending upon the quality of yarn required. For 32s and 36s a 3.3 hank single roving, or about 6 1/4 hank using double roving.

With reference to the best hank roving for various numbers of yarn, this may be answered in a general way by saying that on ring spinning frames using single roving, the hank should be made to keep the total draft around 9 or 10; while with double roving a 10 to 12 draft can be used. There are many mills using much longer drafts than these, but they cannot generally be recommended, as high drafts tend to produce unevenness. Their use in many instances is made compulsory by conditions which cannot be avoided; and not because the superintendent or spinner prefers a high draft.

The drafts given will also apply on spinning mules, except that roll draft may be specified and not total draft; this is because the mule is provided with means for introducing carriage draft, after the fibres leave the rolls, and thus giving a greater total draft than that represented by the drawing rolls.

Bolster.

Embroidered Voile.

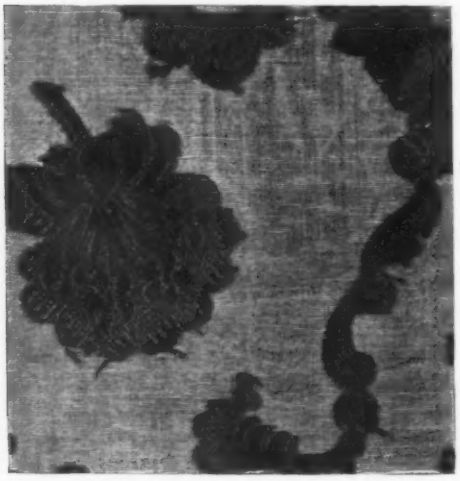
Editor Textile World Record:

The sample enclosed is of foreign make, but I would like to know if goods of this description are woven to any extent in this country. If they are, what make and type of loom are used?

Henderson (877).

A correspondent to whom we submitted the sample writes us as follows:

"The sample of fabric you enclose is made on a



swivel power loom. Very few of these goods are made in this country, though they are made to some extent in England. The Crompton & Knowles Loom Works, Worcester, make looms for weaving this kind of cloth and I enclose a sample of goods made on one of their looms."

Uneven Lap on Finisher Picker.

Editor Textile World Record:

I am bothered a good deal by the finisher picker of my card making an uneven lap. That is, the sheet is uneven. Every once in a while there will be a thin place, almost a hole, varying in size from a half dollar to a man's hand. When one of these holes goes through the picker it makes a bad looking web. I have tried different speeds and regulated the damper every way to get a different draft, but nothing seems to do any good. The picker is cleaned regularly twice a day and stopped quite often to see that no small lump is flying around with the beater. What is the trouble?

Oliver (884).

The speed of the fans and the regulation of the damper have nothing to do with a hole in the laps so small as Oliver describes. On the contrary if the holes were large and there were bunches in the laps then the damper would need to be regulated. As there is no cotton sticking on the beater blades the trouble must be in the grid bars in the iron plate or in the clearer. Sometimes the grid bars are rough and rusty and the cotton accumulates there a little at a time. As the bunch gets larger it shows the thin place in the laps until the whole bunch goes through, and then starts over again. The plate does the same thing too. Seeds and sand get in front between the fluted steel roll and the plate as there is about ½ inch space between these two and about ½ inch between the plate and the top calender roll. After these spaces are filled with seeds and sand it makes it pretty rough for the cotton to travel along without striking. If Oliver will take out the grid bars, smooth them down with fine emery cloth and finish off with black lead, and do the same with the iron plate and keep the two spaces clear from dirt, I think he will have better results. The clearer is the one nearest the lap and has the cloth face down and the wood part face upward.

The cotton passes over this clearer board before it reaches the laps so care should be taken that this board is nice and smooth all over and set rather low.

Hector.

If the pickers are properly cleaned I know of but two things that would cause the unevenness in the laps complained of. One is that the lap may pull through the feed rolls and leave a space without cotton, and the other is that the cages may be jammed out of shape and have some very low places in them, which would make the cotton spread unevenly.

Berlin.

Drying Wool.

Editor Textile World Record:

What is the right temperature for drying wool, and what is the highest temperature at which to carbonize wool and get the best results?

Miller (899).

Good results in carbonizing wool can be obtained at a temperature of 180° F., provided time is allowed for the wool to become thoroughly dry. Ganswindt, a German writer, in a recent work on wool washing and carbonizing, recommends that the wool after having been saturated in the acid solution be first dried at a low temperature, say 100° F., and then carbonized at a temperature of 180° to 210° F. This method is calculated to leave the wool fibre in better condition, as it shortens the time during which the stock is exposed to the high temperature required for carbonizing the vegetable material. As to the right temperature for drying wool, the lower it is the better for the wool, as a high temperature is more or less injurious to the fibre.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.

THE KNIT GOODS SITUATION.

Notwithstanding the fact that there has been a goodly number of buyers in the market during the past month, it cannot be said that any large volume of business has been done during that time. Probably a large number were present principally to attend the meeting of the Jobbers' Association. The fact that the only orders they are placing are of a small tail-end nature, would indicate that they have placed about all the large orders that they intend to at present. Of course, if nothing happens to curtail the demand for merchandise to a considerable degree, these buyers must come into the market again for more goods within the next 60 or 90 days, as it is conceded that their purchases thus far are not sufficient to cover the season's needs.

Several lines of balbriggan shirts and drawers are entirely sold up for the season. These are principally lines of combed goods. Nevertheless, there are some still to be had and if a buyer should come into the market now, looking for a full line of spring merchandise, no doubt he would be able to find some sources from which he could get together a complete line at practically opening prices.

Duplicates on fall lines are not coming forth very freely, but some inquiry is being made as to the possibility of getting deliveries. While it is true that the entire output of some of the larger mills is not entirely sold up, those who are in shape to take on further business can do so only for late deliveries. In a great many cases, buyers do not care to contract to any large extent for deliveries for November and December.

Manufacturers of knit underwear are apparently waking up to their position and strength, and the prospects of higher prices for 1908 are good. The average advance so far obtained by this class of manufacturers has not exceeded 15 per cent. It must be conceded that the advance in prices of raw material, labor, etc., has been much more than that. It seems as if the proper time to get the knit underwear business to a profitable basis is just now, when buyers are expecting to pay advance prices. It is certain that there must be some radical advances over this season's prices. Those in a position to know say that men's fleeces that were sold last season at $3.75 to $3.87 1/2 will be priced at about $4.25 to $4.50, which will, of course, take them out of the 50c. class. As for something to take their place, it is figured that a garment might be made to weigh about 9 lbs. to sell for $3.75. It is a question whether the trade will take so light a garment for 50c., or will insist upon the so-called standard weights for which they will be obliged to pay 75c.

It also looks as though it will be impossible to make a ladies' combed yarn garment to retail at 50c. to weigh 7 1/2 or 8 pounds. One with a combed face and carded back of this weight will have to be priced rather above the limit. The chances are a garment made of mixed yarns to weigh about 7 pounds will be shown by a number of manufacturers.

The effect of the Cohoes strike is now manifesting itself in the delayed deliveries of wool goods from that section. The demand for this class of goods is now so near to the full production that a shut down of even short duration is severely felt. The fact that so much of the production was lost during the strike, makes it practically impossible to place any duplicate orders now for this season's requirements. In regard to another season, either higher prices must be asked or deterioration in the quality must be made in order to meet the demands for goods at so-called popular prices.

Samples of the new spring lines are now being delivered and jobbers are preparing to start their travelers out to solicit business for 1908.

There will probably be no difficulty in selling ladies' straight vests at the advanced prices asked, as this is a line on which the advance is not very noticeable. When it comes to a shaped garment made with high neck, long sleeve and with mercerized trimming and lace trimmed pants to match, the retailers will be slower in placing orders until convinced by looking at several lines that they must pay advances of 10 to 12 1/2 per cent.

We understand that some manufacturers making this class of goods have been so annoyed at the orders they have received with proportion of sizes averaging so heavily on size 6 ladies' goods that for the coming season, they have made a separate price for each size. This appeals to us as being the correct way to sell this class of merchandise. By following this system, a buyer knows just what he has to pay without submitting a scale of sizes to the manufacturer and waiting for him to figure the price on every special case that he may order.

The Amazon Knitting Co. has discontinued making lisle and mercerized yarn goods and their entire production for 1908 will be on the low end cotton ribbed lines. They have sold up the entire output on a line running from 55c. to $1.00 per dozen, making a specialty of full taped garments at 60c. per dozen and also showing a line of very sightly fancy 3-inch insets at 72 1/2c., as well as a line of extra size goods at 80c. and 90c. per dozen.

The Eureka Knitting Co. are showing a line of ladies' straight ribbed vests at 75c. to $1.00 on which they have practically sold up their production at an advance of 5c. per dozen over last year's prices.

The selling agency for the Southdown Knitting Co. that has been in the hands of Bateson & Dowd for a number of years has been changed to A. S. Haight & Co. This mill shows an extensive line of straight ribbed vests at $1.75 to $3.50 and is making a special effort on a line of very sightly patterns in imitation of hand crocheted Swiss lace yokes at from $2.50 to $3.50.

The Julius Hirsch Knitting Co. are showing a line of straight ribbed vests with shoulder straps made of old English everlasting lace. These are put on slanting and make a shoulder strap that will not slip down over the arm. They introduced this feature on their line of union suits last season and it has proven to be a selling card.

There seems to be a scarcity of extra size ladies' shaped goods that jobbers can sell so they will be retailed at 25c. Most manufacturers showing this class of goods are asking $2.15 to $2.25 for them and this does not permit of their being sold at the popular price.

HOSIERY.

It is said that at no time in the history of hosiery trade has the total production been sold so far ahead as at present. Usually about July 1st the jobbers of hosiery look for a quiet six months' business, but the retail trade has kept up so well this season that merchants have been obliged to order frequently, and this has had the effect of reducing stocks in the hands of jobbers quite materially during the past month. There are a few buyers now in the market and none of them will admit having any orders of consequence to place. It is believed by many salesmen that if anything were to occur that would soften up the prices, even to a very slight degree, or if any number of manufacturers gave evidence of being anxious for business, some liberal orders would come forth.

A scarcity still exists in men's low priced black half hose and anything at 65c. to 67 1/2c. is in a well sold up condition. About the lowest thing that is being offered is 144-needle goods at 70c. and they are not very plenty at that.

Few buyers realize the serious scarcity of ladies' fine gauge and full fashioned goods. There is practically none of this class of goods to be had for nine months to come, except what is under contract. New machinery is being installed continually for manufacturing hosiery, but apparently there is not enough fine gauge machinery being set up to keep pace with the demand, and it looks as if it is a promising field for manufacturers to enter.

The indications are that the predominant colors for spring, 1908, will be black, tan,

white and blue in the order named. Embroidered goods in small neat designs continue in favor. Laces will be sold in limited quantities in the West and Southwest and gauze goods will be called for very freely, notwithstanding the complaints that have been made regarding their poor wearing qualities.

Men's half hose in shepherd plaids will be in great demand. Jacquarded patterns of all kinds will be good. The chances are that owing to the well sold up condition of all German manufacturers, there will not be a wide range of extreme novelties shown this coming season.

Piedmont, Italy, produces about three times as many cocoons as any other Italian province, and in proportion to its size is perhaps the most prolific silkworm district of the world, the yield during 1906 amounting to 11,001,647 pounds, with a value of $3,956,583.

THE MANUFACTURE OF BRAID IN THE UNITED STATES.

BY FERDINAND THUN.

(Continued from July.)

STRIPE BRAIDERS.

In all the machines forming the subject of the preceding description, the carriers traverse the entire machine from one terminal to the other. In practically all of them, with the exception of the tubular and fancy president braiders, only one series of carriers is employed. The characteristic feature of the stripe braiders, on the other hand, consists in joining together two or more sections of flat braid by letting all the carriers of two adjoining sections twist around each other on a link plate of such construction that each carrier coming from the right will be returned in the same direction after crossing one or two of the carriers coming from the opposite direction. In order to effect an easy running of these machines supplementary

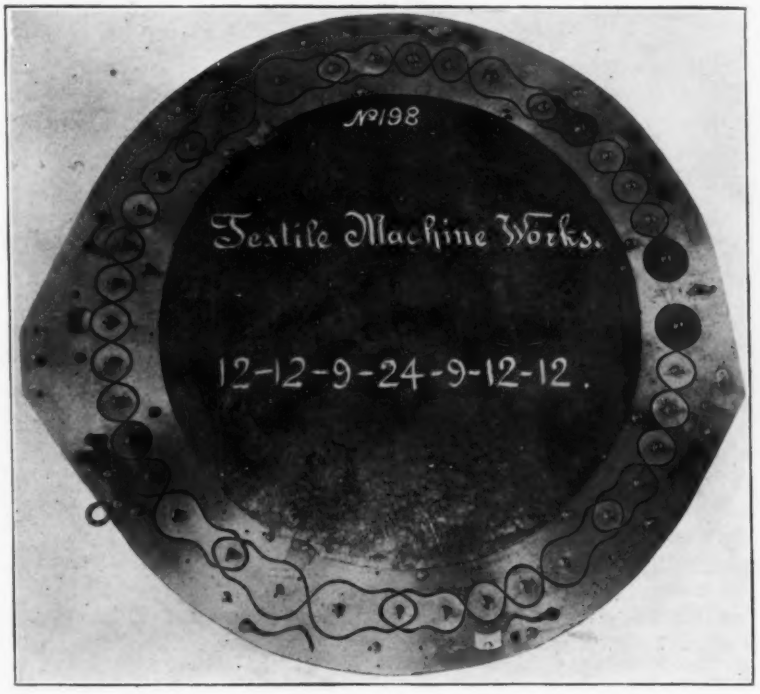


FIG. 47.

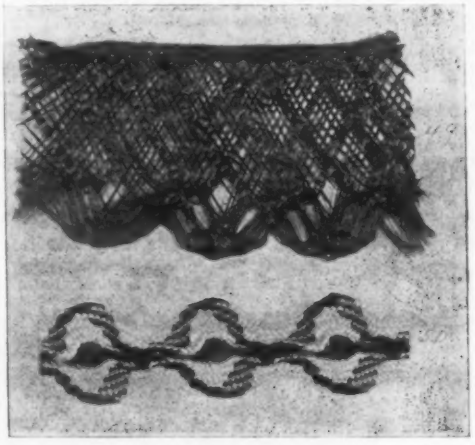
horn gears are used by which the horse shoe type of link plates is developed, as shown at Fig. 47. The bed plate shown here is that of a 7-stripe machine producing a braid with 12 × 12 × 9 × 24 × 9 × 12 × 12 carriers. The centre portion of this braid is practically a 6-line plain or flat braid. To each side of the centre of a 9-carrier soutache is formed and on each side of the soutaches a 2-line flat braid, while the two edges of the braid consist of a 12-carrier flat braid of two and one-half lines. It will readily be seen that a great variety of designs can be produced on

FIG. 48.

machines of this kind as each section can carry a different color or material independent of the adjoining section.

Another type of a stripe braider is illustrated at Fig. 48. This is a 24 × 6 × 24 carrier machine and practically consists of two 6-line flat braid sections joined together by a rotary cross-section in the centre.

Fig. 49 illustrates a very popular millinery braid, made on a stripe braider with 12 × 24 × 12 carriers. The machine on which this braid is made is considerably smaller than the one shown at Fig. 47, but is of the same general construction. The solid woven edge on one side is made from ordinary cotton yarn and is used merely as a support for the rest of the braid when sewed into the shape



FIGS. 49 AND 50.

of a hat. The centre portion is made of narrow strip or straw spread apart by using a very wide former, while the other edge of the

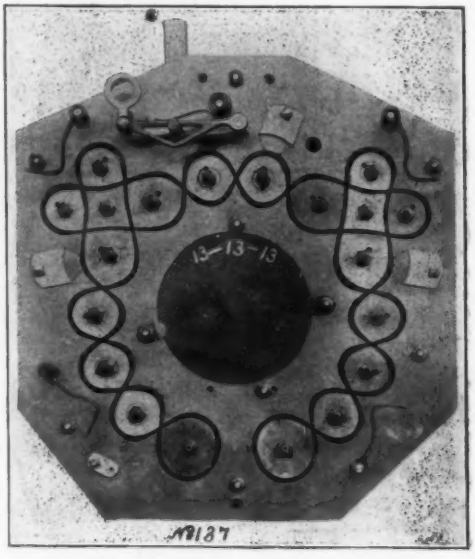


FIG. 51.

braid is a waved braid produced by using irregular tension weights. Contrasting colors could be used on any of the three sections if it were desired.

Fig. 50 shows a product of the machine illustrated at Fig. 48. The varying width of the center of the braid is produced by uneven tension on the threads of the carriers of the adjoining sections. These tensions are arranged for a waved braid and as each carrier interweaves with one of the other carriers on the middle portion it subjects the latter to the varying tension and changes the width.

The braid at Fig. 8, described in connection with the intermittent loop attachment, is also made on this machine and forms a good illustration of its peculiar features.

Still another type of stripe braiders is illustrated at Fig. 51, which shows a 13 × 13 × 13 carrier machine with square cross-overs. In this machine there are link plates arranged to

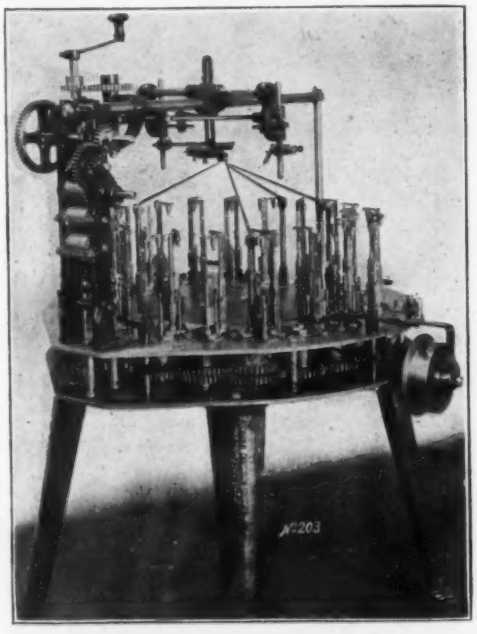


FIG. 52.

form a cross and it is clear that if materials of contrasting color are used on adjoining sections of the machine a stitch effect will be produced by the interbraiding of these threads. This effect is often desired as an ornamental feature and is the principal reason for the existence of this type of machine.

Fig. 52 shows a type of stripe braiders patented by the Textile Machine Works. This machine is shown on long legs and belt drive and with outside weight carriers, but the same construction is also used on the regular type machines. The accompanying line cut will more clearly illustrate the principle of this type of stripe braiders. Fig. 53 shows a plan view of the top plate. m and n are automatic switches operated by cams, r,

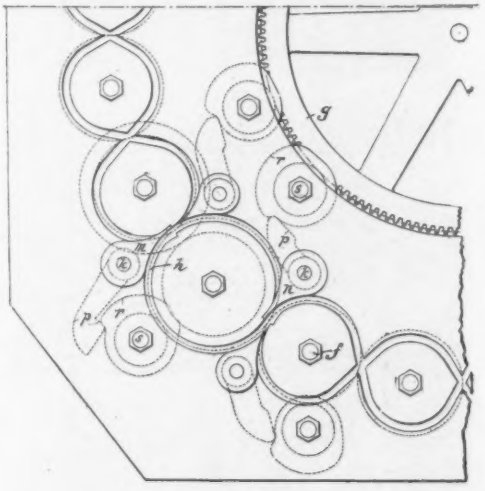
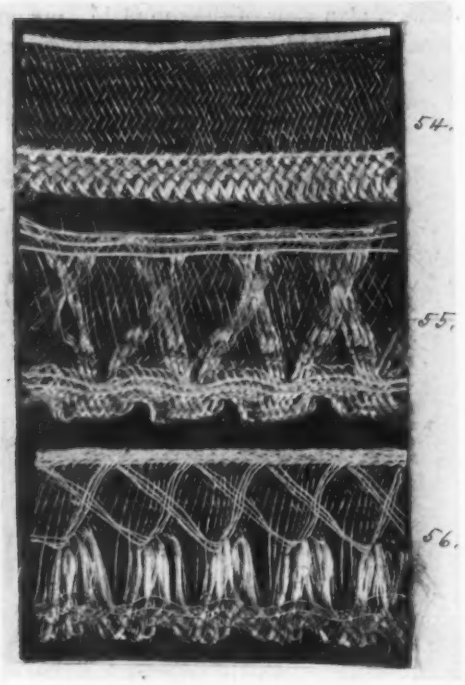


FIG. 53.

in such a manner that a carrier coming from the left passes over the terminal plate, h, and is returned to the section to which it belongs by finding the switch, n, closed and preventing a passage into the adjoining section. A carrier from the right hand section will find the switch, m, closed, compelling it to return over the terminal, h, to the section to which it belongs. The terminal, h, is in reality a double 3-horn gear. It is provided with six horns, three of which form the terminal for the section to its right and the other three for the section to its left. The speed is equivalent to double the speed which a 6-horn would normally have. The great advantage of this type of stripe braiders over the type with horse shoe plates consists in the closer joints made between two sections. On the horse shoe link plates ordinarily 7- or 9-horn combination gears are used to form a link which results in a rather loose weave, which is objectionable for some

kinds of braid, principally for the millinery trade. The type of stripe braider illustrated above is designed to overcome this objection.

The braid at Fig. 54 is made on a 12 × 24 × 12 carrier stripe braider. The narrow edge is made with twelve single ends of glazed cotton. The wide center is made from one



FIGS. 54, 55 AND 56.

end of artificial horse hair and the straight wide edge portion is made from eight ends of artificial silk spooled together on each bobbin.

Fig. 55 shows a 3-stripe millinery braid made on a 12 × 24 × 12 carrier machine. The center is made from one end of horse hair, seventeen spools of single ends and three spools of eight ends of artificial silk running in one direction and four spools in another direction forming the diagonal figure in the center. The scalloped edge is made with twelve carriers each of four ends of artificial silk.

The pattern at Fig. 56 is made on a 12 × 12 × 12 carrier machine. The threads between the scalloped edge and the center portion are loosely drawn over by the heavier tension on some of the carriers on the center section of the machine. The braid is otherwise similar to Fig. 55.

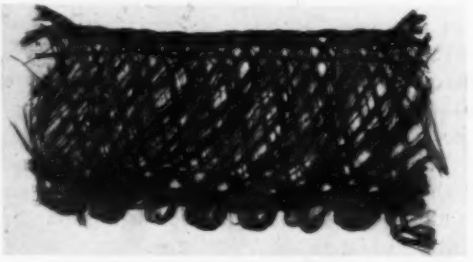
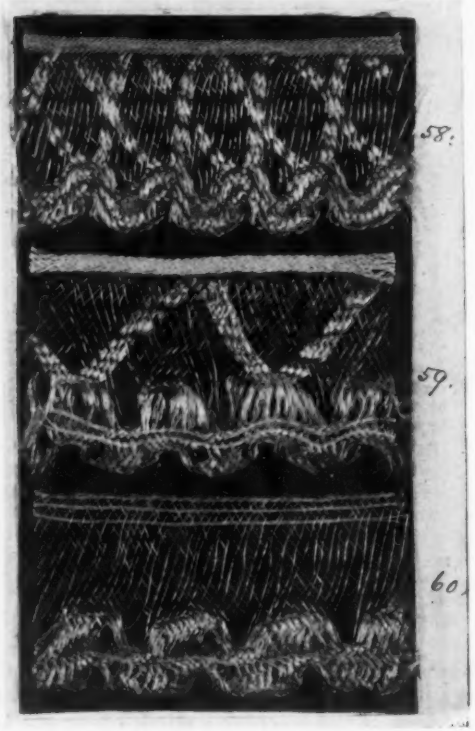


FIG 57.

Fig. 57 shows a 2-stripe millinery braid made on 24 × 12 carrier braider. This braid can also be made on a 3-stripe machine



FIGS. 58, 59 AND 60.

by letting one section of the machine run empty.

The pattern at Fig. 58 is made on a 12 × 24

× 12 carrier braider in the same general manner as No. 55.

Fig. 59 shows a braid made on a 12 × 24 × 12 carrier machine. The tightly woven edge is made of single end glazed cotton yarn. The center portion is made of twenty spools of one end horse hair and four spools of eight ends artificial silk. The scalloped

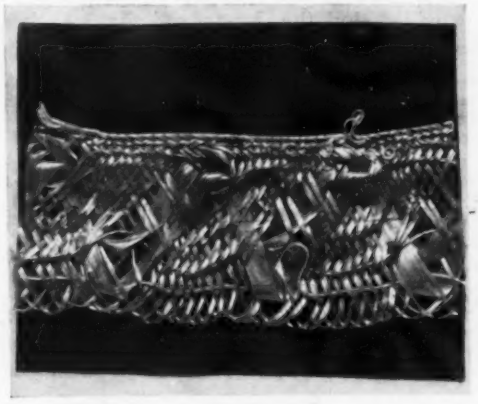


FIG. 61.

edge portion is made with uneven tension weights, using two warp threads to form the parallel ribs and assisted by irregular tension on the threads of the center portion.

Fig. 60 shows a 2-stripe millinery braid made with 22 × 8 carriers from artificial horse hair and wood silk.

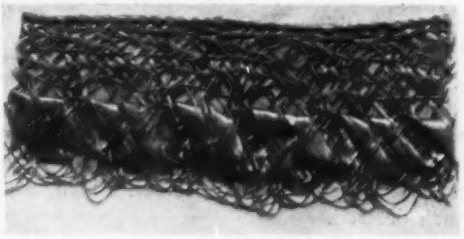


FIG. 62.

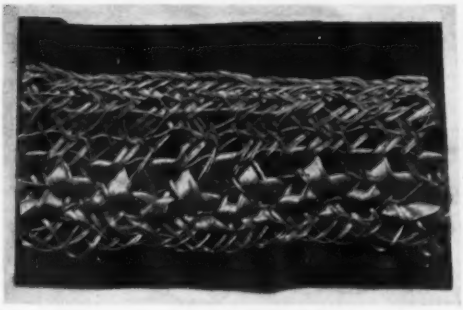


FIG. 63.

Fig. 61 shows a millinery braid consisting of a 21-carrier flat braid made from narrow strip of straw, with additional pattern threads

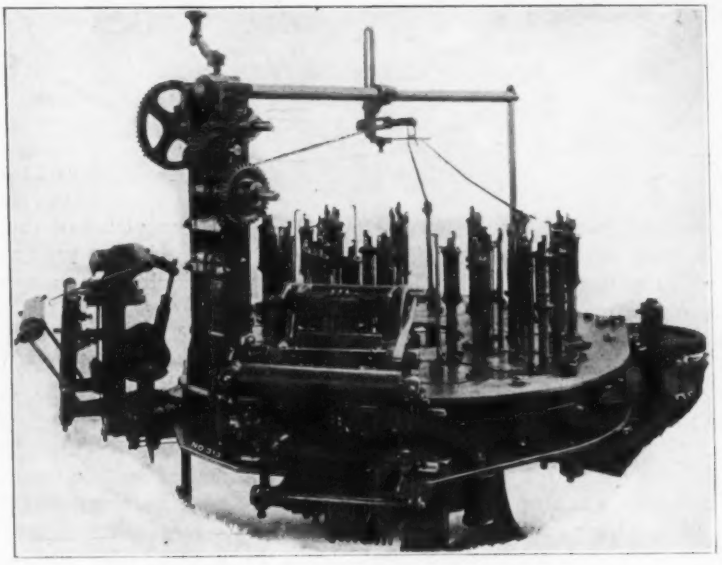


FIG. 64.

of wide straw braided in. This pattern is made on a new type of jacquard braider.

Figs. 62 and 63 are also made on the same type of machines showing the same general construction. These patterns are among the latest novelties in millinery braids and show really beautiful effects because the edge of the pattern, made from straw, is considerably thicker than the balance of the braid and shows a heavy edge effect, which is so much desired.

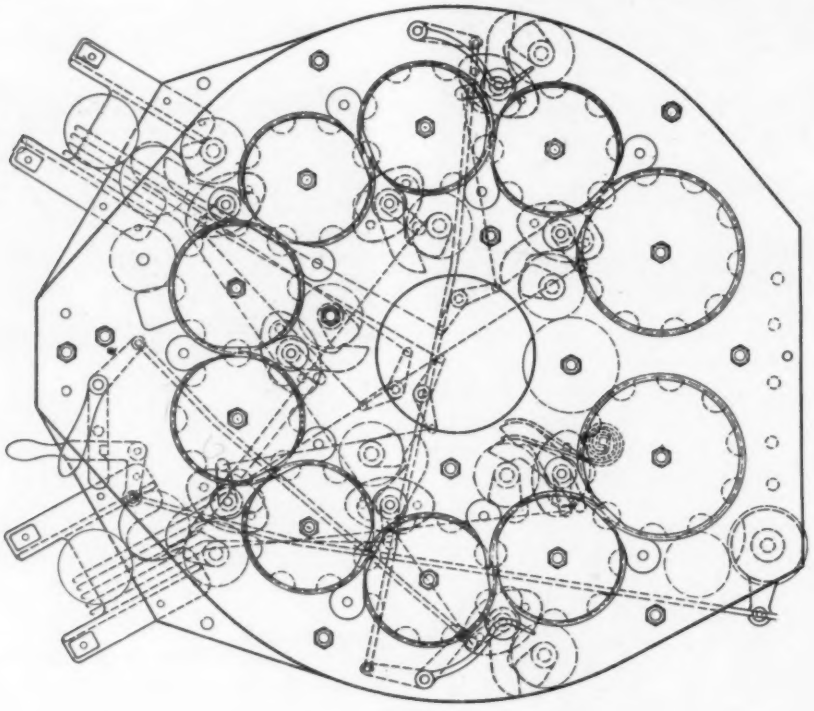


FIG. 65.

JACQUARD BRAIDER FOR FANCY EFFECTS.

Fig. 64 shows the new jacquard millinery braider, on which patterns shown at Figs. 61, 62 and 63 are produced. The principle of the machine will be better understood by reference to Fig. 65, which illustrates the details of this machine. This machine has a carrier course provided with 8-horn gears in place of the ordinary 4-horn gears, and 10-horn terminals in place of the usual 5-horn terminals. In reality, each of the terminal gears is a double 5-horn, and each of the intermediate gears is a double 4-horn, the course being thus adapted for double the ordinary number of carriers, which may be operated without collision in separate series, as desired. The machine is provided with a series of switches. Those on the outer side are operated directly by the carriers themselves and serve merely to round out the carrier groove without, however, controlling the course of the carriers. This control is provided by the inner switches, each of which is fixed to a shaft extending between top and bottom plates of the machine. On these shafts rigid arms are fixed by means of which the required movements are transmitted to the switch. This switch mechanism is adapted to be operated jointly by the jacquard mechanism and by cams operated by the drive gears. The combination of these two elements is the main feature of this invention, and is intended to simplify the jacquard mechanism and the operation of the machine by effecting the regular switch movements required directly from the train of drive gears. The jacquard mechanism

operates wires connected with each arm of the switch shafts so as to turn each of these as determined by the pattern card employed, while, at the same time, each of these switch shafts is arranged to be turned in the same direction as by the jacquard, but, at different times, by means of the gear driven cams, as indicated in the drawing. This combination of the two switch controlling means makes it possible to produce a great variety of braids on a machine of comparatively simple construction, by using only a few jacquard cards and a relatively slow jacquard mechanism.

It is clear that the machine may also be used for dress trimming braids; however, its chief advantage at the present time appears to be the adaptability for producing novel and beautiful effects in millinery braids.

(To be continued.)

AN ORDER AND COST SYSTEM FOR A KNITTING MILL.

BY ESEK EASTON.

The accompanying forms illustrate a system for keeping track of the stock in process, and include the method for arriving at the actual cost of manufacture in each of the several processes from the raw material to the finished goods. Some are for order forms in the departments. Forms for fixed charges, such as office expenses, rent, power, insurance, interest, commissions, etc., are not included, but as the system will give the total production of goods for each month, these can be figured on a monthly, quarterly or half yearly basis. By taking the total production for any of these periods, the average cost per dozen for fixed charges is readily arrived at.

The forms are for those mills that manufacture from the raw material, but the same

Stock Received

June 26, 1907.

Wool		Cotton		Shoddy		Noils					
Bale No.	Grs. Wt. lbs.	Bale No.	Grs. Wt. lbs.	Bale No.	Grs. Wt. lbs.	Bale No.	Grs. Wt. lbs.	Bale No.	Grs. Wt. lbs.	Bale No.	Grs. Wt. lbs.
1043	535	E 102	492	402	503						
1044	560	A 360	480								
540	360										

Received & Weighed by Charles Robinson

FIG. 1.

Batch

Ticket No. 40 June 26. 1907.
Style No 8
Size of Yarn 22 grains
Cards- Set No. 4

Wool	bale #1044	300 lbs
do	" #540	95 "
do		
Cotton	bale A 360	50 "
do		
Shoddy	bale 402	50 "
Noils		
Color	#30 Brown wool	5 "
	Total	500 lbs

John Henry Supt

FIG. 2.

system will apply to mills that buy yarn, by changing the "Stock received" form into "Yarn received" and omitting the other forms up to the knitting room.

The forms are intended also to be a daily record of production of each department, and as these are sent into the office each morning the superintendent is thus informed as to the daily production of the mill in each process.

The form at Fig. 1 is for the record of stock received each day. The items tabulated in the stock form will be shown later. Fig. 2 is the superintendent's order form for the batch and covers the quantities of each kind of stock. These forms should be retained by the boss picker man or by the boss carder.

From this form the foreman of the picker room fills out daily the form at Fig. 3, adding the amount of card and spinner's waste of this particular batch of stock that will go back into it.

From form Fig. 3 the "Used" column in form Fig. 11 "Used" is filled.

Mixing and Picker Room

June 26, 1907.

Batch Ticket No.	Wool		Cotton		Shoddy				Card Waste	Spinners Waste	Colored Stock	Total lbs in Batch
	Bale No.	lbs.	Bale No.	lbs.	Bale No.	lbs.	Bale No.	lbs	lbs.	lbs	lbs.	
40	1044	300	A 360	50	402	50			30	15	5	
40	540	95										545

Thomas Smith Foreman

FIG. 3.

Spinning Room

June 26, 1907.

Spinner's Name	Mule No.	Style No.	Size of Yarn	Net Weight lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	Total
John Henry	1											
Robert Smith	2											
	3											
	4	8	22	30½	28	31	29	31½	30	29½	30	240½

Waste					Remarks	Grand Total
Mule No.	lbs.		Mule No.	lbs.		
1	5½		6	8½		
2	3¼		7			
3	7		8			
Totals						

Henry Nelson Foreman

FIG. 4.

If desired, a percentage to cover the fixed charges can be added to the manufacturing cost of each department and thus give the total cost of yarn ready for the knitting room.

Fig. 4 is for use in the spinning room. This form answers not only for a daily record of production, but also as a record for the pay roll. It is also a daily record of the amount of waste made in spinning.

upon the form at Fig. 4, when the latter is used for the pay roll.

Fig. 6 is a record of cloth knit, and gives the daily production. Each roll of cloth is tagged with number of the machine, size or

Knitting Room

Yarn Received ..... June 26, 1907

Mule No.	1	2	3	4	5	6	7	8	9	10	
Size of Yarn				22							
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs	lbs.	
				30½							
				28							
				31							
Total				89½							Grand Total
Waste											

Wm King ..... Foreman

FIG. 5.

Fig. 5 is a record of yarn received from the spinning room; it also acts as a check

Knitting Room
Cloth Knit

..... 1907.

No. of Machine	Size of Cyl.	Style No.	lbs
1	20	8	56
			54
2	18		
		Total	

Wm King Foreman

FIG. 6.

diameter of cylinder, style number and weight in pounds. This form also answers for compiling the pay roll of knitters where they are paid by the piece, as each knitter can be designated by a machine number. These tags placed on the rolls of cloth in the knitting room are to be replaced after the cloth is washed or dyed and then dried.

The rolls being tagged with the number of the machine and size of cylinder, the boss knitter can locate any machine that is not making good cloth, should bad work be found when cutting. The size of the cylinder is necessary for the dry room, so as to have the roll dried the proper width.

When different sizes of rolls are washed or dyed together, a system of knotted strings can be used to designate the sizes, and tags marked accordingly, so as to ensure each roll being replaced with the tag first placed on it in the knitting. If defects are founds in the cloth when being cut, the knitter is able to locate the machine and operator responsible for it.

(To be continued.)

India imported in 1906 565,770,000 yards of dhooties, of which 98 per cent. were furnished by England.

NATIONAL WHOLESALE DRY GOODS ASSOCIATION STANDARD SIZE SCALE.

RIBBED GOODS.

	Infants'				Children's							
Size mark	0,	1,	1½	2,	2½	3	2,	4,	6,	8,	10,	12,	14,	16
Neck	9,	10,	10,	10,	10,	11	11,	12,	13,	13,	14,	14,	15,	15
Chest	15,	16,	16,	17,	17,	17	18,	18,	19,	20,	21,	22,	24,	26
Vest length	13,	14,	15,	16,	17,	18	16,	18,	20,	24,	24,	26,	28,	30
Sleeve length	8,	9,	9,	10,	10,	11	12,	12,	14,	14,	17,	17,	19,	19
Arm hole	7,	7,	8,	8,	8,	9	10,	10,	11,	11,	13,	13,	15,	15
Upper arm	5,	5,	6,	6,	6,	6	6,	6,	7,	7,	8,	8,	9,	9
Lower arm	4,	4,	5,	5,	5,	5	6,	6,	6,	6,	7,	7,	7,	7
Waist	18,	20,	20,	21,	21,	22	22,	24,	24,	24,	26,	26,	28,	28
Hip							18,	20,	20,	22,	23,	25,	27,	29
Thigh							10,	11,	11,	12,	13,	14,	15,	16
Riseband (to crotch front)							7½,	8,	9,	9½,	10,	10½,	11½,	12½
Rise (to crotch back)							9½,	10,	11,	11½,	13,	13½,	14½,	15
Inseam							13,	15,	17,	20,	23,	25,	27,	29
Trunk							37,	40,	44,	47,	51,	54,	58,	62

	Boys'					Men's						Women's					
Size mark	8,	10,	12,	14,	16	34,	36,	38,	40,	42,	44, 46,	34,	36,	38,	40,	42,	44
Neck	13,	13,	14,	15,	15	16,	16,	17,	17,	18,	19, 20,	16,	17,	18,			
Chest	21,	21,	22,	24,	26	28,	29,	30,	32,	34,	35, 37,	26,	28,	30,	32,	34,	36
Shirt length	21,	23,	25,	27,	29	32,	33,	34,	34,	34,	35, 35,						
Vest length												31,	32,	33,			
Sleeve length	18,	19,	20,	21,	22	23,	23,	23,	23,	23,	23, 23,	21,					
Arm eye	10,	11,	12,	13,	14	15,	16,	16,	17,	18,	19, 20,	16,	18,	20,			
Upper arm	7,	8,	8,	9,	9	10,	10,	11,	11,	12,	13, 14,	10,	11,	13,			
Lower arm	6,	7,	7,	7,	8	8,	9,	10,	10,	11,	11, 11,	8,	10,	12,			
Waist	24,	26,	27,	28,	29	30,	32,	34,	36,	38,	40, 42, 44	26,	28,	30,	32,	34,	36
Hip	22,	23,	25,	26,	28	29,	30,	31,	32,	34,	35, 37, 38	32,	34,	36,	38,	40,	42
Thigh	12,	13,	14,	15,	15	16,	17,	18,	19,	19,	20, 21, 21	18,	19,	20,	21,	22,	23
Front rise	9,	10,	11,	11,	12	13,	13,	13,	14,	14,	14, 15, 15	14,	15,	16,			
Back rise	12,	13,	14,	15,	16	17,	17,	18,	19,	19,	20, 20, 21	18,	20,	22,			
Inseam	20,	23,	25,	28,	30	31,	31,	32,	32,	32,	32, 32, 32	29,	29,	29,	30,	30,	30
Trunk	47,	51,	54,	58,	61	62,	62,	64,	66,	67,	68, 69, 70	62,	64,	66,	68,	70,	72

Sizes on this scale are based on 1/1 rib goods of winter weight and a stretch of 25 per cent. in width is allowed. This allowance may be increased up to 30 per cent. as the goods run lighter in weight or decrease with more rigid fabrics.

FLAT GOODS.

	Infants'						Children's							
Size mark	0,	1	1½	2,	2½	3	2,	4,	6,	8,	10,	12,	14,	16
Neck	10,	11,	11,	11,	12,	12	11,	12,	13,	13,	14,	14,	15,	15
Chest	18,	20,	20,	22,	22,	22	22,	23,	24,	26,	26,	28,	30,	32
Vest length	12,	12,	13,	14,	14,	15	15,	17,	19,	21,	23,	25,	27,	29
Sleeve length	8,	9,	9,	10,	10,	11	11,	11,	11,	13,	13,	13,	16,	16
Arm eye	7,	7,	8,	8,	8,	8	10,	10,	11,	11,	13,	13,	15,	15
Upper arm	6,	6,	7,	7,	7,	7	7,	8,	8,	9,	9,	10,	11,	11
Lower arm	5,	5,	6,	6,	6,	6	6,	7,	7,	8,	8,	8,	9,	9
Waist	18,	20,	20,	22,	22,	24	22,	24,	24,	24,	24,	26,	26,	28
Hip							23,	24,	25,	27,	29,	32,	34,	36
Thigh							12,	13,	14,	15,	16,	17,	19,	21
Front rise							7½,	8,	9,	9½,	10,	10½,	11½,	12½
Back rise							9½,	10,	11,	11½,	13,	13½,	14½,	15½
Inseam							12,	14,	16,	19,	22,	24,	26,	28
Trunk							35,	38,	42,	45,	49,	52,	56,	60

	Women's						Boys'					Men's						
Size mark	34,	36,	38,	40,	42,	44	8,	10,	12,	14,	16	34,	36,	38,	40,	42,	44,	46....
Neck	16,	16,	17,	17,	18,	18	13,	14,	14,	15,	15	16,	16,	17,	17,	18,	19,	20....
Chest	34,	36,	38,	40,	42,	44	26,	26,	28,	30,	32	34,	36,	38,	40,	42,	44,	46....
Vest length	29,	29,	30,	30,	31,	31												
Shirt length							20,	22,	24,	26,	28	30,	31,	32,	32,	34,	33,	33....
Sleeve length	18,	18,	19,	19,	19,	19	17,	18,	19,	20,	21	22,	22,	22,	22,	22,	22,	22....
Arm eye	16,	16,	18,	18,	20,	20	10,	11,	12,	13,	14	16,	16,	16,	17,	18,	19,	20 ....
Upper arm	12,	12,	14,	14,	16,	16	9,	10,	10,	11,	11	12,	13,	14,	14,	15,	16,	17....
Lower arm	10,	10,	12,	12,	14,	14	8,	8,	8,	9,	9	10,	11,	12	12,	13,	13,	14....
Waist	26,	28,	30,	32,	34,	36	24,	26,	27,	28,	29	30,	32,	34,	36,	38,	40,	42, 44
Hip	40,	42,	44,	47,	50,	53	27,	29,	31,	33,	35	36,	37,	38,	40,	42,	44,	46, 48
Thigh	23,	24,	25,	26,	27,	28	15,	16,	17,	18,	19	20,	21,	22,	23,	24,	25,	26, 26
Front rise	14,	14,	15,	15,	16,	16												
Back rise	18,	18,	20,	20,	22,	22												
Inseam	28,	28,	28,	29,	29,	29	19,	22,	24,	27,	29	30,	30,	31,	31,	31,	31,	31....
Trunk	62,	64,	66,	68,	70,	72	47,	51,	54,	58,	61	62,	64,	66,	67,	68,	69,	70....

1. Sleeve length is based on a garment not cut out at the shoulder. When this is done the sleeve must be lengthened accordingly.

2. Where the front and back rise from the inseam to top of band are made the same they must both be the height of the back rise as here given, and not one-half the sum of the front and back.

UNDERWEAR SIZES.

A conference of knit underwear manufacturers and representatives of the National Wholesale Dry Goods Association was held at Utica, N. Y., on July 19, at which the following report on a revised scale of underwear sizes was adopted:

"Your committee begs leave to submit the accompanying schedule of sizes for rib and flat goods, and makes the following recommendations: That a stamp be made of suitable design and bearing the initials 'N. W. D. G. A. Standard,' and also the size, such stamp to be used for marking each garment made under the standard specifications. That the design be copyrighted and the stamps supplied by the secretary on request of the manufacturers with the distinct understanding that the stamp be again demanded by the secretary on proof of its improper use.

"That the manufacturers be required to agree not to use the stamp on goods other than those conforming to the standard scale, and not then unless goods are made for a member of the National Wholesale Dry Goods Association.

"The Committee also recommends that the new method of sizing—viz., children's goods by age and women's goods by bust size—be not used except on goods with the standard stamp."

Variation in the Wale.

Editor Textile World Record:

We are sending you a piece of knit cloth about which we want some information. This cloth is knit on a Nye & Tredick machine of 22s mule spun yarn; the cylinder and dial are 36 standard gauge, 11 needles to the inch. The wale in this cloth looks better in some places than in others. If we used a finer hook on the dial needle would it close the wale better? Could we get better results if we used a 40 hook on a 36 gauge cylinder needle, or a 42 hook on a 36 gauge dial needle? You will understand that we want to make the wale close up better as in some places it stands too open and does not look well. Scott (883).

The trouble with the sample of cloth submitted is probably caused by the needles being out of true. The coarse wales are usually caused by the dial needles being too high, either bent upward or forced up by dirt that has collected in the slot in which they are run. This defect would be more apparent if finer yarn were used. A single needle with a thick hook will cause a coarser wale. In each of these cases the cause is that the needles take more yarn and make the open appearance of the cloth. Needles with a finer hook make finer appearing cloth, but the evenness of the wale is controlled in every case by each needle taking its proper share of yarn. Wabash.

From the appearance of the cloth I should judge that the machine is an old one and in that case the dial would not be true and would have a swing in it either up or down which would make a loose stitch at one point and a tight stitch at another. This may be overcome by bending the needles up or down in opposite directions to the dial throws. Possibly some dirt has lodged under the dial. I don't think using finer needles would change the situation as it would only make finer stitches in both places. If it is a new machine and the dial can be adjusted to run true it may be all right, but if it is an old machine and the trouble cannot be overcome, the cloth can be turned inside out and used that way. It will be noticed that the wale on this cloth is even on the inside.

Benjamin Schoolcraft.

The sample of cloth submitted shows that the cylinder needles are taking more yarn or making a longer stitch in some places than in others. There are several things that will cause this trouble: First, the cylinder and dial may not be perfectly true. Second, some of the slots or grooves in which the dial needles run may be worn down deeper than others, leaving the needles uneven, so that when the cylinder needles draw the stitch or loop they naturally draw a longer stitch over the high dial needles and a shorter stitch over the low ones, leaving the wale uneven, as shown in the sample. Third, the slots or grooves that the cylinder needles run in may be worn so that the needles move more freely in some slots than in others, causing the same effect as worn dial grooves. This is more often the cause of this trouble than any other, as the needles that move freely will respond more readily to every little tension on the yarn, which never pulls from the bobbin or cone with a perfectly even tension. This trouble may be overcome by the stitch cam, but it is a very difficult matter to do this without causing more holes in the fabric and can be done only by an expert knitter who is on the ground and has the machine and all the conditions before him. These conditions cannot be done away with by the needles alone, but by using a coarse cylinder needle and a fine dial needle a great deal of it can be remedied. The cylinder needle being larger than the dial needle it will rob the dial needle of

part of its stitch, leaving a longer stitch on the face than on the back, consequently closing up the wale. To use the regular 36 gauge cylinder needle and a 42 hook dial needle will give a better fabric, but also a narrower one.

It will be hard work to get a decent fabric with 26s yarn on 11 needles to the inch, as this yarn is light for even 12 needles to the inch. As an illustration I am sending four samples of which No. 1 was made on a Nye & Tredick 10-needle machine with 30 gauge cylinder and 36 gauge dial of 24s yarn. No. 2 was made on the same machine with 16s yarn. It will be noticed that the fabric made from the 16s yarn is much more even than that made from the 24s. This is on account of the yarn being heavier, and being so holds the needles so that they will take only the length of stitch the cam is set to give. No. 3 is made of 24s yarn, 12 needles to the inch, 42 dial, 36 cylinder, needle cams set for low stock. No. 4 is made of 24s yarn, 12 needles to the inch, 42 dial and 36 cylinder cams set for good stock and high grade fabric. Madison.

[We regret that we cannot show the difference in these fabrics by half tone engravings, but they have been forwarded to the inquirer.—Ed.]

There are several causes for the variation in the sample submitted. The dial needles may be too high or the cylinder needles too low. Either of these defects will cause a longer loop and a more open wale. If the dial is not cleaned often enough the dirt under the dial needles will prevent the needles from rising. If the cylinder is not cleaned the accumulated dirt will hold the needles tight. Then there are such causes as getting the needles mixed, using some that are too thick. The cylinder slots may become out of true, preventing the needles from moving freely. Occasionally the dial may become worn and cause the defect. A finer hook on the cylinder, say 40 or 36, will improve the work, especially on 26s yarn. I don't believe, however, in changing the dial hook as the dial is the inside stitch and a smaller hook is used to make the goods look finer and not make them lighter. The same length of yarn is used in both cases, but a fine hook leaves the wales between the stitches rather too open, which is the reverse of what is wanted in this case. If the inside stitch or dial needle draws a large loop it pulls up the cylinder stitch, which has the fine hook, and makes the goods look much finer. Alfred Gould.

The wale being open at one point and closed at another is probably caused by the machine being out of true. Using a finer hook on the dial needles would tend to close up the wales, but would still leave them uneven, though the difference might not be as noticeable. I think a 40 hook on a 36 gauge needle would be fine enough. The finer the hook the weaker the needle and consequently greater needle breakage. As for using 26s yarn in place of 22s, that is a matter that depends a great deal on the quality of the goods to be made, although I should say it was rather fine. The finer yarn will not close the wales so well as the coarser one. Onota.

The cause of the difference in the wale of the cloth in the sample submitted is that the cylinder and dial do not run perfectly true with each other —either the dial or the cylinder wobbles. In a fine 36 gauge cylinder and dial the motion may be so slight as to be hardly perceptible when running, but a very close examination will prove it to be so. Where the wale is open, as shown on the sample at the place marked 2, the stitch is longer than where the wale is closed, as at the place marked 1. It follows that where the stitch is the longest that part of the cloth will be elongated more than the other part. Even a casual glance at the sample shows this and by following a line or row of stitches from a point at 1 to a point at 2 it will be seen that there is a deflection of two inches or more. This can be further demonstrated by taking a 1/4 inch magnifying stitch glass and counting the number of wales across and the stitches contained in the quarter inch. At the point marked 1 there will be found to be six wales across and six stitches in length. At the point marked 2 the cloth must be stretched longitudinally until it also shows six wales across; then counting the number of stitches in length it will be found there are but five, thus proving that the stitch is longer than at point 1. In other places in the sample where the wale is as close as at 1, there will be found to be six stitches in length the same as at 1.

In some places where the wale appears still more open, or like a line or a streak, the variation may be caused by a bad needle or a latch that does not work freely; so in drawing the loop it draws a little on the next succeeding loop or on the corresponding dial loops and at those particular places the stitch will be even longer.

It will be readily seen that the difference of one stitch in every quarter inch of cloth, or four stitches in every inch, must cause a difference in the appearance of the cloth, and the open wale is the result.

Wherever the dial or cylinder wobbles so as to make the space between the two (through which the cloth passes down) either larger or smaller, it automatically increases or decreases the length of the stitch. The only remedy for this trouble is to

send the machine to the makers and have it fixed so the dial and cylinder will run true with each other.

In some Nye & Tredick machines the cylinder revolves while the dial cap is stationary, and in some that were built this way the driving gear was attached to the cylinder itself. The cause of the wobbling may be in the dial stud, or there may be unevennesses in the gear that may throw it out of true, or the dial cap may have a tendency to make the dial cylinder wobble, or the trouble may be in the cylinder, but as the dial cylinder is carried around with it the dial would wobble also, although the dial cylinder and stud may be true themselves.

The use of a different hook on the needle would not have any effect on the closing of the wale in one part of the cloth as against the other part, as the fact that the cloth is all right at the place marked 1 shows that the trouble is not from the needles, because if they were to blame the whole of the fabric would show an open wale. But as "Scott" is using 22s yarn on 36 gauge, which is a fine yarn for the gauge, and is thinking of using 26s, the finer hook will give better results in other ways. I would suggest a 42 gauge hook on a 36 gauge cylinder needle and a 48 gauge hook on a 36 gauge dial needle, because in using the finer numbers like 26s on the gauge the stitch should be shorter than with the 22s yarn, and therefore a smaller hook is necessary to prevent the cutting of holes. When the hook of a needle when closed is larger than the loop or stitch, it must cause a strain on the yarn when the loop is passing over it and therefore the liability of making holes is increased and thus a finer or smaller hook is preferable. Noel Howe.

Many manufacturers as well as their knitters have a great deal of trouble, especially on fine gauges, with open and uneven wales in ribbed fabrics, There are several causes for making uneven cloth and it would be impossible to state one remedy that would cure every case. The needles in either the cylinder or the dial may become mixed and thereby cause larger stitches in some places than in others. The open wales, if resulting from this cause, would come at points where the hooks of the dial needles were large or where those of the cylinder needles were small. In a case of this kind I should advise watching the machine for a short time to see if it runs true, and if it does then to install a new set of needles and try again. If it is found that the machine is out of true it is a hard matter to say what to do. There are so many different makes of machines, each with a different way of adjustment, that one would have to see the machine before giving any definite advice on this point. The machine must be made true before it will do perfect work. At the wide points, that is, where the dial and cylinder are separated most, one will surely get open wales. This is also true in case the dial is "run down" by the needles, which virtually throw the machine out of true.

Then again if a manufacturer wishes to reduce the weight of his product and in order to do so uses a finer yarn open wales will result. If the goods are to be made very much lighter the gauge of the machines should be changed. It may be possible to close the wales to some extent by using a finer hook on the dial needle and a coarse one on the cylinder. This will close the wales as much as it is possible to do.

In order to get the best results on a 36 gauge with fine yarn I should use a 40 hook on the dial needles and a 30 hook on the cylinder needles and then set the machines to bring the dial needles a little back of the center between two cylinder needles so that the stitch will be cast off both sets of needles. Onota.

It sometimes happens that the cylinder bed is worn down a little on one side, which will cause the difference in the wale of the goods, and just about one-third of the wale will be slack and look as if it had coarser gauge needles than the other two-thirds. It is almost impossible for this defect in the sample submitted to be caused by coarser gauge needles as it stops and starts too abruptly, unless the machine has been broken and the broken needles taken out of the cylinder and replaced with those of a coarser gauge. But as I have already said, this is almost impossible. I do not think it would be improved by using a finer hook on the dial needles. I would suggest using a 40 hook on a 36 gauge cylinder needle and a 42 hook on a 36 gauge dial needle. This would give a much better fabric and possibly hide the defect. Ravenswood.

KNITTING MILL NEWS.

New Mills.

*Alabama, Fort Payne. Work on the plant of the Florence Knitting Mills is progressing so rapidly that it is expected that the plant will be ready for manufacturing by September. In addition to the manufacture of hosiery, it has been decded to add machinery for the manufacture of ladies' underwear.

*Georgia, Augusta. Machinery is being installed as rapidly as possible in the North Augusta Knitting Mills.

*Massachusetts, Charlton City. A new plant has recently been started here under name of Prindle & Akers, making men's half hose, 84 needle goods, some plain and some plated. Plant is equipped

with 6 knitting machines, operated by water. Goods are sold direct. C. I. Akers is superintendent of the mill and G. C. Prindle, buyer.

*New York, Norwich. The Norwich Knitting Company has been incorporated with a capitalization of $25,000. The directors are N. E. Farrell of Oswego, David N. Farrell and Frederick H. O'Hara of Norwich. It is reported that underwear will be manufactured.

New York, Port Leyden. A mill will be erected and leased to the Port Leyden Knitting Mills, recently organized.

*New York, Norwich. Fred H. O'Hara is treasurer of the Norwich Knitting Co., recently reported incorporated with capital stock of $25,000 and David M. Farrell, superintendent. This plant will be equipped with 4 sets (woolen) cards for making underwear. Product will be sold through Wm. C. Plunkett, 87 Leonard St., New York.

Pennsylvania, Philadelphia. L. Effenberg has recently started the Diamond Knitting Mills at 138 North 8th St., where he is operating 15 knitters by electricity on toques and knitted neckties, using 2/18, 2/26, 2/28 worsted yarns, 2/8, 2/12 cotton, 2/8, 2/10 mercerized silk yarns. Mr. Effenberg, who is an expert in the knitting business, states that it is also his intention to put in machinery for the manufacture of hosiery as soon as the season for manufacturing fancy knit goods is over. The product is sold direct.

*Pennsylvania, Philadelphia. The Cedarwood Knitting Co. recently reported incorporated, should read the Cedarbrook Knitting Co., about which details have been previously mentioned. Plant is run on women's Swiss ribbed vests, with equipment of 3 knitting and 2 sewing machines. Enoch Holland is president of the company and Albert T. Flavell. treasurer.

Pennsylvania, Reading. Schuckert & Matz are operating their new mill. Ten new Invincible, 200 needle knitting machines were recently installed.

Pennsylvania, Reading. Under the title of the Globe Knitting Mill, M. M. Kalbach and H. W. Gehrke will manufacture seamless hosiery. The present equipment consists of 16 knitters, 3 ribbers and 2 loopers. Additional machinery will be installed.

*Pennsylvania, Reading. The Brossman Hosiery Mills is a new concern in Reading which is manufacturing mercerized half hose and ladies' 200 to 240 needle hosiery. Thirty knitting machines have been installed. The American Textile Company is selling their product.

Wisconsin, Hartford. The Paramount Knitting Company of Chicago will establish a branch plant at this place. Space has been rented in a building which is to be improved to suit the requirements of a knitting mill.

Enlargements and Improvements.

*Canada, Ontario, Hamilton. We have been advised that no definite plans have been made regarding the Eagle Knitting Company's new mill. The Company is considering the advisability of using concrete construction but that is as far as the matter has gone.

Canada, Ontario, Woodstock. At a meeting of the directors of the Oxford Knitting Company $2,500 of new capital stock was subscribed to increase the machinery equipment.

Delaware, Wilmington. The Charles Taylor Company, manufacturers of hosiery, is adding a number of striping machines.

*Georgia, Columbia. The report that the Topsey Hosiery Mills are to enlarge their plant and erect new tenement houses is incorrect. We are advised, however, that knitting machinery is being added which will increase their capacity 25 per cent. and that the warehouse is being enlarged.

Illinois, Rochelle. The Vassar Swiss Underwear Company has increased its capital from $40,000 to $200,000.

*Massachusetts, Lawrence. We have been advised by the Lawrence Manufacturing Co. that they are putting in foundation for a new building 280 by 100 feet, 5 stories high which they expect to erect next season. At present plans have not been fully prepared.

*Massachusetts, Northampton. The McCallum Hosiery Company has received from Germany eighteen knitting machines, each of which has a capacity of fifty dozen pairs a week. Three of the machines manufacture lace hosiery. The new machines will double the output of the company.

*Michigan, Detroit. Work has been started on a separate new structure for the Detroit-Alaska Knitting Mills.

New York, Brooklyn. Plans have been made for a three story addition to the Standard Knitting Company. The addition will be 89 by 104 feet and will cost approximately $20,000.

*New York, Cohoes. The Putnam Knitting Co., recently reported as having increased the capital stock to $10,000 will install additional machinery for making ladies' bleached underwear in addition to knitted specialties.

New York, Fort Hunter. L. L. Lovenheim, of Amsterdam, it is reported, has leased the mill building owned by Mrs. J. H. Enders, near the West Shore R. R., and is making arrangements to commence manufacturing knitted goods. The building which is equipped with boiler, engine, shafting etc., is in condition for this class of manufacture and the knitting machinery will be put in at once.

Pennsylvania, Allentown. The Novelty Hosiery Company is installing an automatic fire sprinkler service. A cistern holding 75,000 gallons of water has been put in.

*Pennsylvania, Newville. The Searles Knitting Co., of Pottstown, has started operations in the branch mill recently established here. The product is finished at the main mill.

Pennsylvania, Philadelphia. The Oak Lane Mills have added ten knitters and eight sewing machines and seamers to their equipment.

Pennsylvania, Philadelphia. The Harrison Knitting Co., occupying the second floor of the two-story building at 6th and Huntingdon Sts., where they are looping hosiery for the trade, state that they are soon to take over the entire building, when they will put in 40 knitters for the manufacture of hosiery, which they will sell direct. Two machines have been installed which they are using for experimental purposes.

Pennsylvania, Philadelphia. The Elk Knitting Mills, having outgrown their quarters in the Fretz Bldg at 10th and Diamond Sts., where they occupy an entire floor, have recently contracted for the erection of a new building, two stories and basement, of brick, 54 by 96 feet, with a frontage on Jefferson and 21st Sts. and Ridge Ave. The building will contain all modern appliances suitable for a plant of this kind and will be up-to-date in every particular and will be ready for occupancy during the month of October. The Elk Knitting Mills Co., capitalized at $50,000; Harry Nelke, president and Herbert L. Nelke, treasurer, manufacture women's and children's ribbed underwear in cotton, wool, worsted and silk, operating 50 knitters and 40 sewing machines. This equipment, they state, will be greatly increased by the addition of many new machines. Product is sold direct.

Pennsylvania, Philadelphia. The Maybaum Mfg. Company, Inc., has contracted for 40 200-needle knitters, to be installed within a month.

Pennsylvania, Robesonia. H. W. Sheeler has arranged to build a mill to increase the capacity of his plant.

*Pennsylvania, York. The new dyeing and finishing department of the Crystal Hosiery Company is nearly completed and the machinery will be put in place within a few days.

*Wisconsin, Ripon. The Ripon Knitting Works have recently increased the capital stock to $150,000 to give additional capital for business.

Mills Shutting Down.

Pennsylvania, Philadelphia. The knitting plant of Walter Leavers & Co. at 1230 Orkney St., has been shut down. The plant contains 120 knitters which were operated on men's, women's and infants' hosiery and sold through New York.

Pennsylvania, Philadelphia. The knitting mill reported as having been started by E. Stevenson at 2334 E. Norris St., has been dismantled and the machinery disposed of to other parties. The plant, which contained 50 knitters, made hosiery and was managed by Mrs. Stevenson.

Facts and Gossip.

Massachusetts, Lowell. The plant and machinery of the Pickering Mfg. Co. was sold yesterday afternoon at auction by J. C. Conant & Co. of Lowell. Lot including the mill buildings and land, the engine and boiler, was sold to Franklin D. Russell of Lowell for $45,000 plus $1,993 taxes. Lot 2, which included the machinery equipment also was sold to Mr. F. D. Russell for $7,500 plus $1,493 taxes.

Michigan, Detroit. A permit has been taken out by the Detroit Alaska Knitting Mills for the erection of a two-story brick building. It is estimated the building will cost $20,000.

Minnesota, Minneapolis. The Northland Knitting Company, reported incorporated recently, has purchased a site for $7,200. It is reported that a new factory will be built at once.

New York, Hamilton. Arrangements have been made for the Rodney Knitting Company to locate a plant in a building formerly used by a silk mill.

*New York, Ilion. The Capron Knitting Co. has been erroneously reported as negotiating for the purchase of the Sterling Mills.

*New York, Mohawk. No bids were received for the plant of the Mohawk Valley Knitting Mills, Ltd., at the adjourned sale on June 29. It is announced that the sale of real estate is adjourned until August 1, and in the meantime machinery and other mill equipment will be sold in separate parcels.

Pennsylvania, Philadelphia. The Powell Knitting Co., manufacturers of seamless hosiery of cotton, merino, wool and worsted yarns, who have been operating a plant at West Chester, Pa., state that on account of the scarcity of help in that vicinity they will not put knitting machinery in the mill in which they are located. The plant is used as a branch of the main mill in this city for the purpose of looping and finishing, 45 loopers being in operation. This company is desirous of starting a branch plant in a town where good facilities in the way of help, etc., can be guaranteed. The main mill and offices are at 28th and Parrish Sts., Phila.

Pennsylvania, York. J. T. Kopp of the York Knitting Mills, is reported as investigating project of establishing a branch plant at Belair.

Personals.

James Farley of the Oak Knitting Company, Syracuse, N. Y., has become superintendent of the Duofold Health Underwear Company's plant at Frankfort, N. Y., succeeding Joseph Berger, who resigned to become superintendent of the Special Machinery Company, Amsterdam, N. Y.

William Shaftoe has accepted a position as boss spinner for the Elmira Knitting Mills, Elmira, N. Y. He was formerly employed at Springfield, Mass.

J. M. Allen has accepted a position as superintendent for the Vermont Hosiery and Machinery Company, Northfield, Vt. He was formerly employed at Utica, N. Y.

William J. Ferris has accepted a position as foreman in the Glenark Mill, Woonsocket, R. I., which is to resume operations in the near future. He was formerly employed at the Barnett Textile Company, Troy, N. Y.

Martin Howard, of Carthage, N. Y., has accepted a position with C. H. Yates & Company, Utica, N. Y., as foreman of their infants' hosiery department. He is to commence work August 1st.

Willard Carrol has accepted a position as boss carder for the Wayside Mills, Troy, N. Y. He was formerly employed at Amsterdam, N. Y.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Thread Guide. I. E. Palmer, Middletown, Conn. A thread guide for ring frames which is described on another page of this issue.

Press for Hosiery. Edwin A. Newton, 245 Race St., Philadelphia, is bringing out a new screw press for cold pressing hosiery. It is claimed that the finished product is of high quality. The press is on exhibition at the above address.

Shuttle Guard. T. Yates, Preston, England. An improved shuttle guard which is semi-automatic, being readily pushed out of the way by the weaver, but as soon as the loom starts the forward motion of the lay brings the guard into position again.

Shuttle Guard. Walker & Owen, Manchester, England. An improved shuttle guard, which is automatically placed in operative position by the starting of the loom.

Roller Leather Stripper. Cook & Co., Manchester, England. A device for removing the leather covering from rollers without damage to the flannel.

Dyeing Jute. Geo. Janett, Dresden, Germany. An improved process for coloring jute, which is described in another part of this issue.

Singeing Machine for Knit Goods. C. G. Haubold, Jr., Chemnitz, Germany. A singeing machine specially adapted for knit goods. It is provided with an appliance for keeping the goods free from wrinkles while exposed to the flame.

Yarn Drying Machine. Herm. Dickerhoff, Barmen, Germany. An improved machine for drying skein yarn. It is provided with an automatic device for regulating the temperature.

Dobby Motion. B. H. Moxon & Sons, Huddersfield, England. An improved dobby motion which aims to prevent jamming or sticking of the jack levers in the dobby loom.

Jacquard for Knitting Frames. Alfred Cooke, Nottingham, England. An improved jaquard adapted for knitting machines.

Improved Yarn Reel. F. R. Poller, Leipzig, Germany. A reel for testing yarn which embodies several improved features in its construction.

Yarn Dyeing Machine. Gaydet & Fils, Roubaix, France. A dyeing machine in which the liquor is forced through the yarn by a pump or air pressure. The new feature of the machine consists in the use of convex plates in which the cops or spools are set. These plates are placed in a conical shaped tub, the advantage claimed being that the convex plates are not bent out of shape by the continuous pressure and that a very tight joint is obtained between the plates and the sides of the tub.

Fabric Measuring Machine. A. M. Casperson & Sons, Leeds, England. A fabric measuring machine which is built on a somewhat different principle from those heretofore in use. The roll over which the cloth is drawn is stationary. The face of the measuring wheel mounted on ball bearings, presses against the cloth as the stationary wheel is revolved by the movement of the fabric, the distance in inches being indicated by a pointer on the side of the wheel. When the end of the cloth passes the measuring wheel the latter is stopped by coming in contact with the stationary roll. The measuring wheel is connected with a clock which indicates the length in yards. It is stated that the machine is adapted for measuring any fabric from the heaviest carpets to the flimsiest silks.

AN ADJUSTABLE LEASE ROD.

A lease rod that expands and contracts with the varying tension of the warp during weaving is the latest invention of Dr. T. A. B. Carver, of Glasgow, Scotland, to be patented in this country. Fig. 1 is a perspective view of the rod; Figs. 2 and 3 show a cross section and side elevation of one form of the rod; Fig. 4 is a vertical section showing the position of the warp and the lease rod in a loom equipped with the stop motion described in our issue of November, 1904. Dr. Carver describes the improved lease rod as follows:

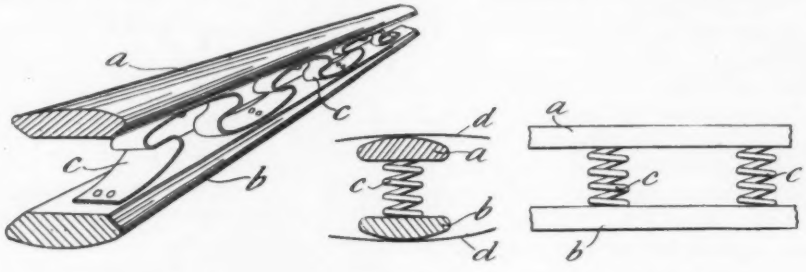


FIG. 1. FIG. 2. FIG. 3.

Breakages of the yarn in looms, warping machines or the like are liable to occur when the threads, passing above and below the lease rods, adhere together owing to the dressing of the warp or from any other cause. By this invention these breakages are diminished by constructing the lease rods in such a manner that they can expand and contract in a direction at right angles to the plane of the warp, so that the surfaces against which the threads lie on the rod above and below it, or on one side of it and the other, can move relatively to each other in obedience to the periodic variations of tension in the warp.

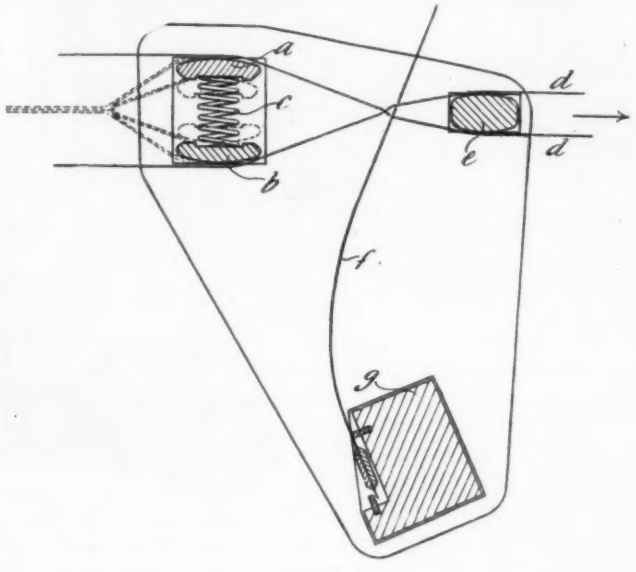


FIG. 4.

The rod may be divided longitudinally and the two parts connected together by suitable

springs; the threads of the warp lie respectively against the top polished surface and against the bottom polished surface of this compound rod, in the case of a horizontal lease rod, and the rod contracts and expands as the warp is tightened and loosened. Or the rods may have separate surfaces connected with springs or devices depending on fluid pressure.

The lease rod is made in two parts, a and b, connected together by springs, c, which may be laminar springs as shown in Fig. 1 or helical springs as shown in Figs. 2 and 3. The threads pass over and under this compound rod as indicated by d in Fig. 2, and the surfaces against which they rest may be polished. The expansive medium between the sections of the lease rod expands, as will be apparent upon an inspection of the drawings, on a straight line instead of on a curved line.

When the lease rod is applied in conjunction with a warp stop motion it need only be used as the rod over which the warp first passes, because it is at this point that the opening of the yarn is particularly required. This is shown in Fig. 4 where the warp, d, moves in the direction of the arrow and passes first over the expanding lease rod and then over an ordinary lease rod, e. The wire, f, is fixed at its lower end to a suitable beam, g, and is held at its upper part in front of the crossing of two of the warp threads. If either of these threads breaks the wire springs back and serves either to indicate to the attendant that the machine is to be stopped or to actuate electrically or mechanically some stopping device.

As the tension in the warp increases and diminishes periodically with the movement of the loom, the two parts, a and b, of the lease rod approach and recede from each other, and this movement greatly assists in separating threads which may adhere together owing to the dressing or from any other cause.

It will be evident that the sections or parts of this lease rod are separated. In other words there is no direct connection between the two, such as is presented by a hinge. An expansible medium is placed between the parts or sections of the rod which constantly tends to spread them apart. By virtue of the construction described these sections can bodily approach and recede from each other so that there is no tendency to abrade the warp when they are spread apart.

PALMER'S THREAD GUIDE FOR RING FRAMES.

This new thread guide, now being put on the market, was invented and perfected by the manufacturer, I. E. Palmer, Middletown, Conn., and comprises a pig tail guide, Fig. 1, having an elongated eye for fastening to the board. It is held firmly in place by a

FIG. 1.

FIG. 2.

grooved surface next to the wood. The guide is fastened either by a wood screw or bolt passing through the clamp plate, Fig. 2, and over the guide. At Fig. 3 it is shown fastened by a bolt.

The guide has a wide range of adjustment; not only can it be set in and out far beyond

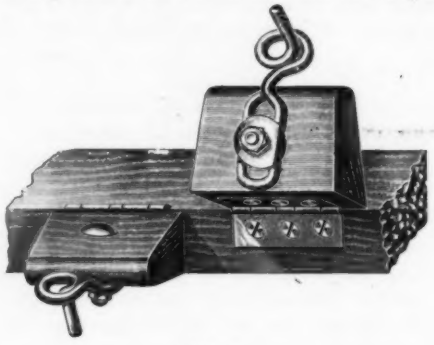


FIG. 3.

all possible requirements, but the form of clamp plate and guide permits adjustment sideways to any degree.

The construction of the guide, as shown in our illustrations, demonstrates without further explanation the ease with which it can be applied and adjusted to the frame. It requires no expert mechanic, the manu-

facturer stating that one man with the assistance of a boy can easily attach 800 to 1,000 in a day. A drilling template, forcing tongs, and a socket wrench are furnished for this work. The shape of the guide at the point where the yarn comes in contact with it allows sufficient play so that the twist is carried clear to the bite of the rolls; this also prevents the yarn from wearing in the guide.

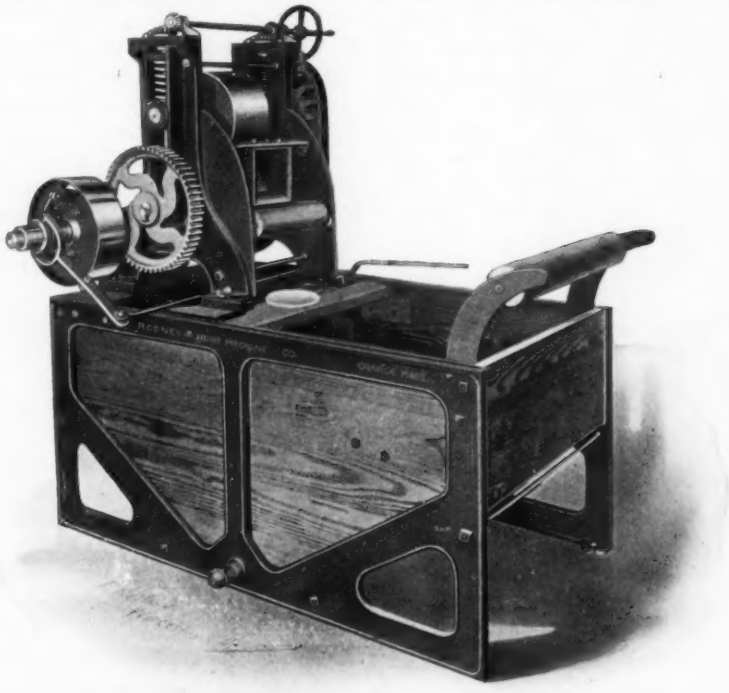
The guide is furnished with the kink arrester offset at any angle desired. The inclination shown in the illustration is recommended by the manufacturer.

The guide is sold at a low price and is easily attached to old frames. Mr. Palmer states that if any manufacturer will send him a thread board with the old guide in its approximate position he will apply the Palmer guide and return the board without charge in order that the merits of the new guide may be demonstrated by a practical test.

The annual product of American textile mills of all kinds is over $1600 per operative.

RODNEY HUNT SOAPING MACHINE.

It is unnecessary to dwell on the importance of uniform soaping of goods to be fulled. Any irregularity in the distribution of the soap throughout the piece is very apt to result in irregularity in the finish of the goods. Furthermore, a soaping of the pieces in a separate machine makes it possible to begin fulling as soon as the pieces enter the fulling mill.



THE RODNEY HUNT SOAPING MACHINE.

The soaping machine built by the Rodney Hunt Machine Co., Orange, Mass., has been carefully developed under actual operating conditions and the builders now believe it to be the best on the market. It consists of a well-built soap tank, which is braced as shown in the illustration, giving a very rigid support for the squeeze rolls. There are special guide rolls inside, under which the goods pass in the soaping solution. Powerful squeeze rolls are driven by back gears so as to require a small amount of power. The iron throat piece is formed so as to prevent

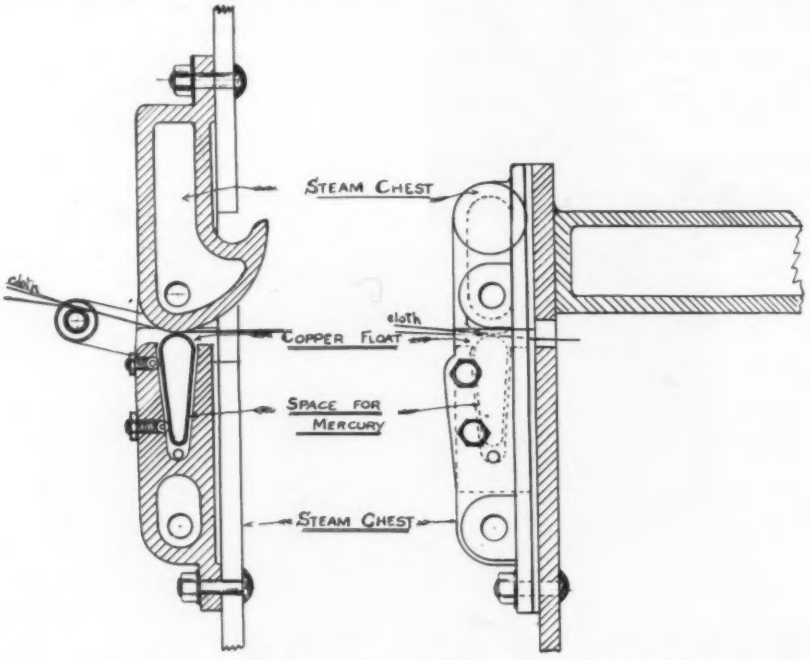
any knotting of the goods. The pressure wheels are located in a convenient position to enable the pressure and the amount of soap in the goods to be easily regulated. The long tooth gears are protected by a rigid guard. The rolls are adapted for various kinds of goods.

Fullers, and especially those having any difficulty with irregular fulling, should investigate the advantages of soaping in the separate machine. By corresponding with the Rodney Hunt Machine Co. they will be able to obtain particulars and names of mills on which this machine has been in successful use.

The percentage of imports from Great Britain into Canada in 1906 increased from 23.98 per cent. in 1905 to 24.42 per cent., while the percentage from the United States decreased from 60.58 in 1905 to 59.59 per cent. The percentage of exports to Great Britain increased from 50.61 in 1905 to 53.96 in 1906, and decreased from 37.51 to 35.68 per cent. to the United States.

GRAY'S AUTOMATIC MOUTHPIECE FOR AGEING MACHINES.

The James Hunter Machine Co., North Adams, Mass., manufacture a mouthpiece for ageing machines invented by I. E. Gray, and which is shown in the accompanying illustration. It is adapted for the steaming of goods at high temperatures with saturated steam and is said to give results heretofore impossible of attainment. It enables any kind of goods to be steamed with uniform results, because of the uniform temperature maintained. It can be readily applied to any existing machine and consists of improved steam chests with special provision made to prevent condensed drops; also a solid drawn copper float resting in mercury, which automatically adjusts itself to any variation in the thickness of cloth from silk to heavy flannel, ensuring practically a steam tight joint where the piece enters and leaves the ager, keeping out cold air and enabling a much higher temperature to be maintained than would otherwise be possible. It is



THE PLAN OF GRAY'S AUTOMATIC MOUTHPIECE FOR AGEING MACHINES.

claimed that where this mouthpiece is used many difficulties which have baffled all attempts at solution have entirely disappeared. It has been adopted by Mather & Platt of Manchester, England, for their agers, with complete success.

ROPE DRIVE FOR INDIVIDUAL MACHINES.

BY C. P. HUTCHINS.

Hitherto rope drive has been almost impracticable for individual machines, such as speeders, spinning frames and the like, because of the lack of suitable means of shifting ropes, as belts are shifted, and because of the temptation to follow precedent as the line of least resistance. While a power rope can be shifted from one groove to another, the operation is so slow that it is unsuitable for mill practice. Hence belts have generally been used for these transmissions, though some machines have been run with rope driving, using fast and loose rope sheaves or pulleys.

Of late, a number of single pulley drives have been introduced on machines of this class, in which changes are effected by lever-controlled friction clutches. This system has the great advantage of increasing the power delivered to the machines by high initial belt speed. Such changes can be made very quickly.

As transmission rope offers an excellent means for supplying power to constant speed shafts, it would not be surprising if a great increase occurred in rope driving for individual machine drive in textile mills. This would result in marked economy of space, as the rim surface for rope sheaves is much less than that required for belting, which in turn means more rigidly supported shafts, as there will be less spring between the closer spaced bearings. It will also greatly decrease the noise of driving, the loss of power from slipping, convenience of load distribution and loss of installation and maintenance. Properly laid and lubricated rope, such as the "American" transmission rope, is not only much cheaper than belting, but requires no expense to speak of for dressing, lacing, cleaning and taking up slack.

Though we are not accustomed in this country to see driving rope shifted from an idle to a working pulley, it can be done just as well as with a belt, and is a matter of common occurrence in England. In a number of large cotton mills in the Lancashire district, the power is conveyed from a line shaft running the whole length of the room to numerous ring frames by ropes instead of belts, the ropes operating on fast and loose pulleys mounted within guard boxes. This arrangement affords an excellent illustration of the reduction in weight on the shafting afforded by the substitution of rope driving for belting. The 3 1/2-inch belts usually employed need pulleys of 4 1/2-inch face, while the ropes used are only 13/16 of an

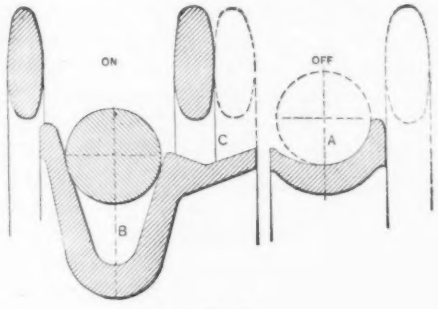


FIG. 1.

inch in diameter, and work in sheaves occupying with their flanges not more than one inch space laterally.

In this combination a shifting arrangement is used, illustrated at Fig. 1, which could well be adapted for the drive of constant speed machine tools. The idle or loose sheave, A, has practically all of its flange cut away on the side towards the working or fast sheave, B. To throw the machine into action, a curved rope shifter or fork is used, shown in section at Fig. 1, and perspectively at Fig. 2. It is bent to the curve of the sheave with just enough clearance above the sheave flanges to allow the rope to pass, and is operated with a pivoted hand lever as usual with belting. Referring to Fig. 1, as the arm of the fork engages the driving side of the rope, it pushes the latter clear of its reduced flange on to the intermediate groove C, cut in the fast sheave. On this it gains a revolution while passing to its work, which

insures a gradual starting or stopping and provides a most sensitive action. The shifter continuing towards the left, presses the rope into its working sheave, B, whence it is readily forced out by a reverse movement of the fork whenever the machine is to be stopped.

Besides being extensively used in English cotton mills, fast and loose driving is also used on lathes, mortar mills and in milling. Against rope driving of such machines, it has been argued that because the driving shaft is usually directly above the machine, it would be necessary to use the American or continuous system, with its complication of tension carriage and idler sheave.

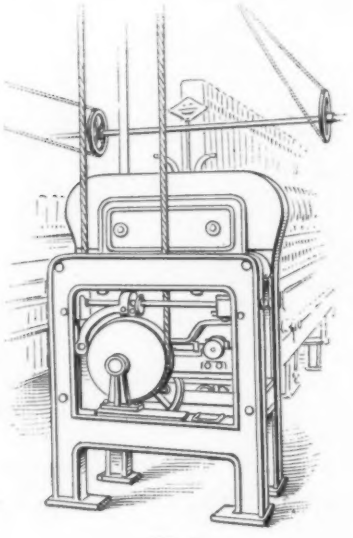


FIG. 2.

In answer to this we submit that there is no law to prevent the driving shaft from being set sufficiently to one side over the tool to make such an angle with the vertical that the multiple or English system could be used with sufficient natural tension. The principal reasons for placing driving shafts directly over machines are to reduce the length and cost of the belts, and to keep the passage way between machines clear overhead. With rope drive the cost is so much reduced as compared to belting, that even double the length will still be much cheaper than the belt.

It might be a good plan to adopt an entirely different arrangement with rope drives by carrying the power through the floor from line shafts run underneath. This would very much shorten the length of drives, clear the overhead space, and enable the shifter or fork to operate on the driving side of the rope from below. It might, however, have the disadvantage of increased fire risk from the large openings made necessary in the floors.

That almost any machinist can lace a belt, whereas practically none can splice a rope is an objectionable feature of constantly diminishing weight, because in the first place a rope does not need to be spliced nearly so often as a belt needs to be laced, and with the rapidly increasing use of transmission rope, the practice is growing of having at least one expert drive rope splicer attached to each large textile mill.

Rope transmission is comparatively so new a feature of engineering except for large direct drives, that its possibilities will deserve exhaustive research and testing, because in every case where it has been tried under seemingly most unfavorable conditions, it has given results justifying the enthusiasm of its sponsors.

South Carolina leads in the manufacture of brown or bleached sheetings and shirtings, followed by Georgia, with Massachusetts third.

In the manufacture of plain cotton cloths Massachusetts leads, producing over one-half of the grade "not finer than No. 28" and almost one-half of the "finer than No. 28," with South Carolina a good second.

Consul G. A. Bucklin, of Glauchau, reports that according to the latest statistics the population of the German Empire is given at 60,605,183. The average density of population is 290.3 per square mile. Saxony, with 5,789 square miles, has a population of 4,502,350, or an average of 778.9 per square mile. The Chemnitz division of Saxony, which is equivalent to a county in the United States, contains 1,064 persons to the square mile, and is one of the most densely populated districts in the world.

Dyeing, Bleaching, Printing, Etc.

GRADING, DYEING AND WEIGHTING SILK.

BY JAMES CHITTICK.

Raw silk may be broadly divided into two great general classes. The first, and by far the most important, is the cultivated silk, that produced by the silk worm of the bombyx mori, and the second includes the wild silks—commonly known as Tussahs—produced by several species of wild silk worms.

The greater part of the cultivated silk is white or yellow; some also being of a greenish or brownish tinge. Raw silk is composed of two different substances; the fibroin or silk proper, and the sericin, an animal gum soluble in warm water. The yellow color in the silk is in this gum and the silk itself is of the usual creamy white shade when the gum is boiled off. Tussah silk is of a light to medium brown color. Its structural nature is different from that of ordinary silk and it is difficult to dye, as it does not boil off white, and almost impossible to bleach a full white, though by the use of peroxide of hydrogen very fair results have been obtained. Tussah silk being also coarse and quite irregular, its use has been in the past decidedly limited, though with improved reeling it is now steadily growing in importance.

The nature of silk is greatly influenced by climatic conditions, the altitude of the locality, the nature of the soil and water, which will influence the character of the mulberry leaf on which the worm feeds, and the nature of the water used in reeling. Districts not far apart may therefore produce silks differing widely in character, and the same cocoons, reeled in different water, may give a very different result.

The principal countries from which raw silk is shipped are China, Japan, Italy and France. Italy not only produces a great deal of silk itself, but also reels much silk from cocoons produced in the Levant, Turkey, Syria and other Eastern localities. The bulk of these Eastern cocoons are white, as is the silk from China and Japan, while most of the Italian, French and other European cocoons are yellow.

From North China come principally the China Steam Filatures, which are silks reeled in establishments and on machinery of the European kind, Tsatlees, which are silks reeled in the more primitive native way, and Tussahs, which are largely reeled in Chefoo from cocoons collected in Manchuria. These three classes of silk are generally shipped from Shanghai. From Canton, in South China, comes the Canton silk, reeled from very small cocoons of fine fibre, and as the number of filaments required to make the customary sizes of thread is considerable and the fine individual fibres break easily, the silk is more or less hairy.

The best grades of China Steam Filatures possess great brilliancy, whiteness, strength and elasticity, and in their nature are second to none in the world. The Tsatlees, being reeled in a primitive manner, are difficult to work, though the nature of the silk is excellent. They are very irregular in size and the character and size of the skeins make it hard for the throwsters to handle them. Good qualities of Tussahs are now very well reeled and are quite dependable in character and their use is constantly extending. Low grade Tussahs are best let alone except by very experienced people.

Cantons are put up in rather long skeins and are so reeled as to make their manipulation difficult, so their cost of throwing and amount of waste is greater. They are pretty regularly reeled, but their hairiness limits their use. There are usually six crops, sometimes seven, of Cantons, and the first three are generally much inferior to the last three.

Practically all the Japanese silks are white and those that are exported are generally well reeled, in Grant reel skeins of suitable size, diameter and weight. The best Japanese chops are extremely good silk and a wide range of usable qualities is produced.

From Italy comes much of the best silk in the world—that of Piedmont being especially noted. The French silks stand high and very good qualities of silk are produced in Spain, Sicily, Hungary, etc.

The Italian and French silks are generally more carefully reeled than the Asiatic and are therefore more regular and the size can be better depended upon.

The percentage of gum in yellow silk is greater than in white silk. Thus in representative Italian and other European yellow silks the loss in boiling-off (though individual parcels will vary widely) will average about 24 per cent., while the loss in the white China silks will run about 19 per cent. and in Japanese silks only about 18 per cent. Good grades of Tussah will lose about 14 per cent. These boil-off losses are very important and should constantly be borne in mind.

Silks shipped from Europe are packed in bales of about 100 kilograms, or 220.46 pounds. Those from Japan and Shanghai in picul bales of 133 1/3 pounds, and those from Canton in catty bales of 106 2/3 pounds.

The usual sizes into which silk is reeled are 10/12, 12/14, 13/15, 14/16 and 16/18 deniers. Sometimes a finer size than 10/12 is reeled and coarser sizes than 16/18 are reeled, generally on special order. The greater part of the bombyx mori silk is reeled into sizes averaging about 13/15 deniers. Canton silks are mostly reeled into 14/16 deniers. The best eight-cocoon Tussahs run 35/40 deniers. The thickness of the cocoon filament differs throughout its length, the filament of an average good bombyx mori cocoon being, say, from 2 to 4 deniers. There is therefore no such thing as a 1 denier silk, nor could a single nor even a double filament be practically worked. In reeling a certain size, if the cocoon threads run finer at times more will be joined together to get the desired size and fewer if the size is coarser, the filaments adhering to one another by their gum which is softened by the water in which they are floated. A 13/15 denier size will usually be reeled from five cocoons. A 12/14 denier silk should average in size between the limits of 12.50 and 13.50 deniers; a 13/15 between 13.50 and 14.50; a 14/16 between 14.50 and 15.50, and so on.

To find the number of yards per avoirdupois pound (7,000 grains) of a given size in deniers, divide 4,440,600 yards by the deniers; or to find the deniers of a given yardage reverse the process. A pound of 12/14 denier raw silk will measure about 200 miles.

The qualities which are desirable in raw silks are: regularity in size; cleanliness, which means freedom from nibs, slugs, loops, etc.; elasticity; tenacity, or strength; evenness of color; freedom from hairiness; skeins well reeled with good crossings and of regular weight and suitable diameter and free from broken ends; free gums, which means that the places where the silk has come in contact with the arms of the reel, in reeling, and which generally cohere at such places, should not be too hard. It requires expert judgment to form a proper opinion of the grade of any sample of silk.

There is no hard and fast standard for classifying silk. The best grades are generally referred to as Extra Classical and are supposed to be made of the best cocoons of the season reeled in the best possible manner, but as the quality of cocoons will vary from season to season it is evident that the Classical of one season may be as good as the Extra Classical of another. Again the quality of workmanship in the different reeling establishments will vary and there will be marked differences in the merit of silks nominally of the same grade.

The various filatures, or reeling establishments, buy cocoons suited for their usual requirements and these are generally sorted out and reeled up into three grades, but the best grade of one firm may rank at the top of the scale while the best grade of another firm may be only a middle class silk. European silks are generally quoted as Extra Classical, Classical, and No. 1, the first two being ordinarily thrown into organzine and the last into tram. There are also the Italian realinas which go into tram. China Steam Filatures are graded as No. 1, No. 2 and No. 3; No. 1, a very high grade, going into organzine, and No. 2 also, though of much less worth, will make fair organzine stock,

while No. 3 is used for tram. Cantons are seldom used for anything but tram. The best grade is Extra Extra A, and the next grade is Extra Extra B. The best Japans are described as Extra Classical, or Double Extra, and, descending the scale, we have Extra Best No. 1, No. 1, No. 1 to No. 1 1/2, No. 1 1/2, No. 1 1/2 to No. 2, and some lower. Above No. 1 these silks go generally into organzine; No. 1 and lower go into tram. Then there is the important line of Japan Re Reels (native reelings re-reeled into commercial shape) used almost exclusively for tram. Three or four chops grading as No. 1 stand at the head of the list and are excellent silks and there are three or four grades lower. Tussahs are merely classed according to the reputation of the chops and most of the reelers put out two grades, No. 1 and No. 2. Tsatlees grade according to the known merit of the chops. There are some other kinds of silks of limited use, Kakedas, Douppione, Waterreels, etc., that may be omitted here.

Each manufacturer must decide for himself as to the quality of silk to use for his organzine or tram according to the conditions in his mill. Those with high-priced help and making good qualities of goods usually go in for the best grades from which they can get a large and perfect product and can run their looms at high speed, while those manufacturers making lower grade goods or having looms that cannot be speeded up, may figure that it is more profitable to use the lower qualities. It may be remarked, however, that the best manufacturers generally use the best silk.

Before silk can be dyed in the skein it must be thrown, or twisted. The twist prepared for warp purposes is called organzine and is generally made by twisting single raw silk thread a number of turns per inch in one direction, and then doubling two of them together and twisting them in the reverse direction. This gives a very well combined thread that will stand the chafing of reed and harness that it is exposed to in the loom without fraying out. The silk prepared for filling purposes, not being exposed to this chafing, is made much slacker and more open, and so serves to fill the cloth better. Two or more ends, generally three to five, of the raw silk are doubled together and are then twisted in one direction, very slackly, say from two to four turns per inch; but even this suffices to hold them in shape through the dyeing and subsequent processes.

The weighting and dyeing of silks is a high class chemical art and should never be attempted except by thoroughly experienced people, as any inferior work in that department may lead to most disastrous results. The text books on the subject will give detailed information as to the processes, but it may be said in brief that the first step is boiling-off the gum from the silk in a bath of olive oil soap and hot water; next the giving to the silk the weighting required; and finally the coloring and finishing of the silk.

Various substances have a great affinity for silk, such as the salts of tin, iron, gall, sumac, sugar, etc. Owing to the dark color of some of these agents, such as iron, they can be used for blacks only; others, such as gall, can be used for weighting colors except for very light shades, while the salts of tin can be used for any color from the lightest to the darkest and therefore this agent, perchloride of tin, is the one generally used for all colors. It is a very destructive substance and requires the most thorough neutralization and washing out, or traces of acid will remain in the silk which will cause it to rot speedily. Silks weighted with tin also become rotten very fast by continued exposure to sunlight.

A pound of silk, 16 ounces, when boiled off, will have 12 to 13 ounces of pure silk remaining. When dipped in the tin liquor it will absorb about 2 ounces of extra weight. The surplus liquor is then removed from the silk in the hydro-extractor, the silk is thoroughly washed out and it is then dipped in a fixing bath of soda, and again washed out. It is now receptive to the tin again and this sequence of treatment can be followed till the silk has received the desired weighting. If treated by experienced dyers with great care and with first-class plant and dyeing materials, a silk weighted within proper limits should be perfectly sound in strength for

all commercial purposes and for a good length of time.

For colors on organzine, of regular sizes and twists of silk, careful manufacturers do not care to go above 16 to 18-ounce weighting; that is the 12 to 13 ounces of silk to the pound, remaining after the boil-off, is increased to an average of 17 ounces when weighted, and for tram 22 to 24 ounces is about the safe maximum. Black organzine will be safely weighted from 20 and 22 ounces to 26 and 28 ounces according to circumstances, and tram from 28 to 30 to as high as 40 ounces. If the silk is dyed souple, —that is, not boiled off,—the weighting may go higher, but souple silk is very lustreless, and most of these heavy weightings can be used only for weaves where the filling shows little. The amount of weighting that can safely be used depends on many things, such as the amount, nature and twist of the silk, character of goods, and uses to which they are to be put.

For pure dye silks the weighting is of course omitted. It must be borne in mind, however, that while some colorings add no perceptible weight to the silk, others, such as cardinal, feed the fibre materially; and for a good blue black it is generally necessary to use an iron solution, which really weights the silk, whether it be desired or not, as the shade cannot be obtained otherwise.

It is wise to employ only dyers of the highest standing to do the work, for while other firms may make lower quotations, the difference in cost may be looked upon as an insurance against bad dyeing, poor color matching, and the mixing of silk, and if a large lot should go wrong the first rate firm is able and willing to pay for it in full and promptly. But bad work is rare with the best dyers and a manufacturer giving his work to them has the assurance that he will get back his own silk, on time, and properly dyed, and that his looms will not be stopped, nor the reputation of his goods damaged, by bad work at the dyeing end.

In 1906 the value of the exports of manufactured cottons from Great Britain increased 35 million dollars over that of 1905.

DYEING JUTE.

A process for dyeing jute has recently been brought out in Germany. The description of the new method is as follows: It is well known that aniline sulphate colors jute a golden yellow, which fades quickly when exposed to the light. This defect is overcome by the new process.

A solution of 4 per cent. of aniline sulphate, 1 per cent. muriatic acid and 4 per cent. chloride of tin is prepared. In place of the free acid, materials can be used to develop free acid in the solution. By coloring jute in this liquor a bright and very durable yellow is obtained. The new process is of value for coloring jute with all the basic as well as the wood extracts. This mordant is not suited for cotton, wool or silk, but is well adapted for jute, cocoa fibre, wood, etc.

CHANGE OF SHADE IN CROSS DYEING.

In dyeing cotton and wool mixtures by coloring the cotton first and then coloring the wool in an acid bath, it often happens that the shade of the cotton is changed more or less. This is the case even when the wool dye does not bleed on the cotton. This fact gives rise to the supposition that the process of dyeing changes the properties of the cotton in some degree. The result is noticed especially with basic dyes used with tanning mordant because the cotton is then in a condition that permits of the absorption of a trace of the wool dye. The change of shade occurs not only in cotton mordanted with tannin, but also with cotton otherwise treated; for example, in dyeing with the sulphur colors, a large number of which have an affinity for the basic dyes.

When it is recalled that many of the acid dyes used for wool belong to the basic groups and consequently are absorbed by the cotton the explanation of the change of shade is at once apparent. The remedy in such cases consists generally not in changing the method of dyeing the cotton, but in selecting a different dye for the wool.—Leipziger Faerber Zeitung.

DISCHARGING DYED COLORS.

An improved method of discharging dyed colors is the subject of a recent French patent. The specifications state that a certain number of azo colors produced on the fibre, and particularly naphthylamine claret, resist to an extraordinary extent the action of salts of formaldehyde-sulphoxylic acid when in a state of purity (Rongalite C), and when in combination with formaldehyde-bisulphite (Hydrosulphite N F) (Hyraldite), and are imperfectly discharged by these products when steamed in the ordinary manner.

In the principal patent it was demonstrated that this difficultly dischargeable class of colors is dischargeable in a remarkable manner by the formaldehyde-sulphoxylates, or the formaldehyde-hydrosulphites if there be added to the printing paste certain metallic salts, metallic oxides, or metals, with or without the addition of nitrites.

It is now observed that equally good discharge-effects are obtainable by using salts of organic ammonium bases or the bases themselves, instead of the substances previously cited. The series of compounds available for this purpose include chloride of tetraalkylammonium, chloride of trimethylphenylammonium, chloride of trimethyltolylammonium, the iodide of the latter, chloride of dimethylphenylbenzylammonium, the hydroxide of the latter, Methyl Violet 3 R A, Rhodamine B extra, Thionine Blue 60, Methylene Blue BG, Induline Scarlet, Safranine T extra, Janus Blue G, Janus Green G, and in a minor degree, Nile Blue, Methylene Blue N N, and Janus Green B.

Any of these compounds may be incorporated with the printing paste, or the dyed fabric may be padded in its solution, or it may be added to the developing bath and discharges effected with the ordinary Rongalite or Hydrosulphite N F. The singular effect of these organic ammonium salts and their bases is very surprising, particularly as in certain cases a minute quantity suffices to produce irreproachable results.

For example, a pure white is obtained by the addition to the printing paste of only 1/4 ounce Induline Scarlet per cubic foot of the solution.

The new discharges do not contain alkali, so that basic colors may be used for colored effects, and they are applicable also to Paranitraniline Red, Chloranisidine Orange, Chrysoidine Bistre, etc.

TYPES: COLORED DISCHARGES.

1. Print on the dyed fabric the following paste:

30 parts Auramine G dissolved in
60 parts acetine,
135 parts water, and
220 parts gum thickening 1 : 1,
85 parts aniline,
210 parts alcoholic solution of tannin 3 : 4,
250 parts Rongalite C,
10 parts chloride of dimethylphenylbenzylammonium.

Print, dry, steam for five minutes in a rapid ager, pass through tartar emetic, and wash.

2. Pad the grey cloth in a bath composed of

25 parts B-napthol,
200 parts water,
59 parts caustic soda, 36° Tw.,
75 parts tragacanth 60 : 1,000,
641 parts water.

Dry and pass through a diazo bath of

14.3 parts a-naphthylamine,
300 parts water,
11.8 parts hydrochloric acid.

Cool and add

23.6 parts hydrochloric acid, 36° Tw.,
200 parts ice,
7.5 parts nitrite of soda,
26 parts water.

Filter and add when required for use

30 parts acetate of soda,
950 parts cold water,
0.25-0.5 parts Induline Scarlet,
50 parts water.

After developing, the cloth is washed and soaped for five minutes at 105° F. in a bath containing five ounces soap per cubic foot. Discharges are effected with Rongalite C 15 pounds per cubic foot, followed by steaming. —Journal of the Society of Dyers and Colorists.

PROCESS FOR FIXING COLORS.

This process consists in subjecting colored textile materials to the action of a liquid that will set the color and prevent bleeding. It is said to be especially adapted for the direct dyes, such as the benzidine and diamine products and the colors that contain meta-diamine and resorcin. The inventor states that fibres and fabrics, when treated according to this process, will not wash off or bleed into lighter color fibres with which they may be combined. The process and the compound used in carrying out the process are especially applicable to certain dyes that have heretofore been unstable in this respect, particularly the direct dyeing blacks.

The new process consists essentially in subjecting the dyed fibres or fabrics to the action of formaldehyde (CH_2O), the latter being either in a gaseous or saturated form and being used alone or combined with an alkali or alkaline salts; the treatment is conducted in such manner, and for such a length of time as particular circumstances may require. It is essential that the material operated upon shall be thoroughly impregnated by the formaldehyde. It has been found that the formaldehyde treatment will fasten and develop the color of dyed fibres and fabrics by effecting the condensation of the coloring matter on the goods, at the same time rendering inert any loose color. This greatly increases the fastness of the color and effectually prevents it washing away or bleeding into the white during any subsequent washing operations to which the fibres or fabrics may be subjected.

The process is suited for yarn or cloth which has been previously dyed with one or more of the benzidine series of colors, say for instance, black. The material is taken in any convenient quantity, wet from the dye bath and then given an after-treatment of formaldehyde at a temperature of 130° F. for about 30 minutes. This bath is preferably made up in the following proportions; viz., sufficient water is used to cover the goods in the tank or other receptacle in which the operation is carried out, and to this bath a quantity of formaldehyde (of commercial 40 per cent. strength), equal to about 2 to 4 per cent. of the weight of the goods is added. It is not absolutely necessary that the bath be heated, and the process may be carried out at a much lower temperature, the only difference being that the goods must remain in the bath of lower temperature for a longer time. This is not altogether objectionable, however, since the vaporization of formaldehyde, which is volatile, takes place slowly at the lower temperature.

Under certain conditions it is advantageous to add an alkali to the solution of formaldehyde. For this purpose potash or caustic soap, carbonate of potash or carbonate of soda, caustic potash or caustic soda, or any other suitable alkaline substance may be used. The addition of an alkaline substance to the formaldehyde serves to render the latter less volatile, and at the same time the combination of the alkali with the formaldehyde assists the latter to fix and cleanse the color. For commercial purposes, the addition of the alkali diminishes vaporization and lessens the loss of formaldehyde during shipment.

BLEACHING WOOL.

Although little is generally known regarding the merits of permanganate of potash for bleaching wool and wool goods, yet very good results are obtained with this material when it is properly used. Success depends less on the particular strength of the solution than on the proper manipulation of the goods. When bleaching yarn it is necessary to turn the skeins frequently in order to obtain a uniform saturation of the material. Good results are obtained with a solution consisting of 3/4 ounce permanganate of potash to 220 pounds of water. The wool is left in this liquor for three-quarters to one hour. It is then turned frequently for another hour and left for 1 1/2 hours, after which it is taken out, extracted and rinsed.

Oxidation of the organic material causes a separation of the peroxide of manganese and gives the wool a yellowish brown shade, which, however, is only on the surface and is removed by treating the material in a very dilute solution of sulphuric acid at 140° F.

The wool is then rinsed well and extracted in order to remove all traces of the acid, which would otherwise cause a weakening of the fibre. After rinsing in cold water the material is treated in a solution of soda such as is generally used for bleaching, and finally rinsed in warm water. The object of the soda bath is to neutralize any acid remaining in the fibre.—Berlin Textil Zeitung.

Color Cards.

Thiogene Navy Blue R Conc.; H. A. Metz & Co., New York City.

Ten samples of cotton yarn and piece goods dyed with different percentages of Thiogene Navy Blue R Conc., for which complete dyeing directions are given.

Isamine Blue; Cassella Color Co., New York City.

This is Supplement No. 21 containing fifteen samples of yarn and cloth dyed with Isamine Blue 6 B, B and R. The samples include cotton yarn, mercerized cotton yarn, artificial silk, sateen and satin.

Amine Black; Berlin Aniline Works, New York City.

A folder showing a 6 per cent. dyeing of Amine Black 4 B G and a 3 per cent. dyeing of Amine Black-Green B, on woolen piece goods. Full working directions are given.

Diamine Fast Grey R N; Cassella Color Co., New York City.

Card No. 2.882 showing 3/10 per cent. and 1 1/2 per cent. dyeings of Diamine Fast Grey R N on raw cotton, cotton yarn and piece goods.

Brilliant Phosphine; A. Klipstein & Co., New York City.

A folder containing nine samples of cotton yarn dyed with Brilliant Phosphine 5G, 3G and G. One of the samples shows a red shade obtained by the use of Rhodamine 6G and two show shades of green produced with Fast Green J J I.

Chrome Fast Black; Berlin Aniline Works, New York City.

A folder containing sixteen samples of raw stock, yarn and piece goods, showing 8 and 9 per cent. dyeings of Chrome Fast Black PF, P 4B, PB and PT, for which full working directions are given.

Anthracene Chrome Brown S W N; Cassella Color Co., New York City.

Ten samples of raw wool, slubbing and woolen yarn dyed with different percentages of Anthracene Chrome Brown S W N. Three shades were dyed of chromed wool and three were afterchromed. This dye is also suitable for Vigoureaux printing.

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 113.

Yellow on Cotton Yarn.

Tetrazo Yellow M G on 100 lbs. cotton yarn. Prepare the dye bath with

1½ lbs. Tetrazo Yellow M G.
(American Dyewood Co., 154 William St., New York.)
20 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Tetrazo Yellow M G gives a bright yellow of good coloring power and excellent fastness to light.

In union dyeing the wool is colored stronger than the cotton.

Recipe No. 114.

Tan Color on Cotton Yarn.

Light Tan G on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Light Tan G.
(C. Bischoff & Co., 451 Washington St., New York.)
20 lbs. Common Salt.

Dye at a boil for one hour.

Light Tan G will be found an excellent color for dyeing of cotton hosiery.

Recipe No. 115.

Grey on Cotton Yarn.

Diamine Fast Grey R N on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diamine Fast Grey R N.
(Cassella Color Co., 182 Front St., New York.)
25 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Diamine Fast Grey R N will be found to give an excellent shade of grey on cotton material.

Recipe No. 116.

Black on Worsted Yarn.

Wool Black 6 G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Wool Black 6 G.
(W. F. Sykes & Co., 85 Water St., New York.)

10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter yarn at 180° F. and dye at a boil for one hour.

Wool Black 6 G will be found to give an excellent shade of black upon wool material.

Recipe No. 117.

Brown on Worsted Yarn.

Anthracene Chrome Brown S W N on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Anthracene Chrome Brown S W N. (Cassella Color Co., 182 Front St., New York.)
10 lbs. Glauber's Salt.
6 lbs. Acetic Acid.

Enter at 120° F., bring to a boil and dye at a boil for one hour.

Add

2 lbs. Potassium Bichromate

to the dye bath and after-chrome this at a boil for one hour.

Anthracene Chrome Brown S W N gives an excellent shade of brown which possesses very good fastness.

Recipe No. 118.

Black on Union Cloth.

Direct Black 06161 on 100 lbs cotton and wool union cloth. Prepare the dye bath with

20 lbs. Common Salt.
10 lbs. Glauber's Salt.

Enter the material at 100°-120° F., run a few minutes and then add

4 lbs. Direct Black 06161 (previously dissolved in hot water). (F. E. Atteaux & Co., 174 Purchase St., Boston.)

Work the material for 1/2 hour at 120° F., 1/4 hour at 170° F., then bring to a boil and boil to shade on the wool, which generally takes from 20 to 30 minutes. Shut off steam and run for 30 minutes in the gradually cooling bath.

Direct Black 06161 is very fast to acids, alkalies and hot pressing. It dyes the cotton a deep bloomy shade which is not easily boiled off.

This color may be used to advantage in combination with Puretone Black, and with the addition of a little Neutral Blue Black almost all requirements of black union dyeing may be met.

Recipe No. 119.

Yellow on Cotton Yarn.

Tetrazo Yellow R on 100 lbs. cotton yarn. Prepare the dye bath with

1½ lbs. Tetrazo Yellow R. (American Dyewood Co., 154 William St., New York.)
20 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Tetrazo Yellow R gives dyeings possessing good fastness to washing, light and acids.

In union dyeing the cotton is dyed while the wool remains uncolored.

Recipe No. 120.

Blue on Cotton Yarn.

Triazol Pure Blue R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Triazol Pure Blue R. (Geisenheimer & Co., 189 Front St., New York.)
25 lbs. Common Salt.
1 lb. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Triazol Pure Blue R gives an extremely bright shade of blue of a reddish cast.

Recipe No. 121.

Blue on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

15 ozs. 18 grs. Guinea Fast Violet 10 B.
10 ozs. 105 grs. Guinea Fast Green B.
6 ozs. 315 grs. Guinea Red 4 R. (Berlin Aniline Works, 213 Water St., New York.)
4 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter material at 140° F., adding the acid slowly. Bring to a boil and dye at a boil for one hour.

This combination will be found valuable for the dyeing of ladies' dress goods.

Recipe No. 122.

Dark Tan Color on Cotton Yarn.

Dark Tan R on 100 lbs. cotton yarn. Prepare the dye bath with

2½ lbs. Dark Tan R. (C. Bischoff & Co., 451 Washington St., New York.)
20 lbs. Common Salt.

Dye at a boil for one hour.

Dark Tan R will be found an excellent color for the dyeing of cotton hosiery.

Recipe No. 123.

Green on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Amine Black Green B.
1 lb. Guinea Fast Green B.
(Berlin Aniline Works, 213 Water St., New York.)
3 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter material at 140° F., adding the acid slowly. Bring to a boil and dye at a boil for one hour.

This combination will be found valuable for the dyeing of ladies' dress goods.

Recipe No. 124.

Tan Color on Cotton Yarn.

Compound Shade on 100 lbs. cotton yarn. Prepare the dye bath with

½ lb. Toluylene Orange G O O.
1½ lbs. Triazol Brown G O O.
½ lb. Triazol Brown D.
(Geisenheimer & Co., 189 Front St., New York.)
25 lbs. Common Salt.
1 lb. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

This combination of color will be found to produce an excellent and fashionable shade of tan.

Recipe No. 125.

Blue on Worsted Yarn.

Anthracene Acid Blue B B N on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Anthracene Acid Blue B B N.
(Cassella Color Co., 182 Front St., New York.)
4 lbs. Acetic Acid

After boiling 1/2 hour, add

4 lbs. Sulphuric Acid

and boil 3/4 of an hour to exhaust the dye bath. Then aftertreat for one hour in a bath made up with

3 lbs. Potassium Bichromate.

Anthracene Acid Blue B B N will be found to give an excellent and fast shade of blue upon wool material.

Recipe No. 126.

Orange on Cotton Yarn.

Tetrazo Orange Y on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Tetrazo Orange Y.
(American Dyewood Co., 154 William St., New York.)
20 lbs. Common Salt.

Enter at 180° F. and dye at a boil for one hour.

Tetrazo Orange Y is of interest for producing bright orange shades of excellent fastness to light.

Recipe No. 127.

Blue on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

1 lb. 14 ozs. 175 grs. Guinea Fast Violet 10 B.
1 lb 12 ozs. Guinea Fast Green B.
1 lb. 5 ozs. 262 grs. Guinea Red 4 R.
(Berlin Aniline Works, 213 Water St., New York.)
4 lbs. Sulphuric Acid
10 lbs. Glauber's Salt.

Enter material at 140° F., adding the acid slowly. Bring to a boil and dye at a boil for one hour.

This combination will be found valuable for the dyeing of ladies' dress goods.

Recipe No. 128.

Black on Cotton Yarn.

Autogene Black B E E on 100 lbs. cotton yarn. Prepare the dye bath with

First Bath.

6.8 lbs. Autogene Black B E E.
(W. F. Sykes & Co., 85 Water St., New York.)
13.6 lbs. Sodium Sulphide.
10 lbs. Soda Ash.
75 lbs. Common Salt.

Second Bath.

4½ lbs. Autogene Black B E E.
(W. F Sykes & Co., 85 Water St., New York.)
4½ lbs. Sodium Sulphide.
2 lbs. Soda Ash.
10 lbs. Common Salt.

Third Bath.

4 lbs. Autogene Black B E E.
(W. F Sykes & Co., 85 Water St., New York.)
4 lbs. Sodium Sulphide.
2 lbs. Soda Ash.
5-10 lbs. Common Salt.

The density being kept at about 10° Tw.

Dissolve the dyestuff in sodium sulphide, separately, and add to the bath in which the soda ash and common salt have already been dissolved.

Dye at a temperature just below boiling for one hour, keeping the material below the surface of the liquor as much as possible.

Autogene Black B E E is a very concentrated sulphur black and possesses the excellent qualities of that class of colors.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*California, Oakland. The Oakland Cotton Mill, recently reported incorporated with capital stock of $500,000 will start work on construction of new buildings Aug. 1st. This plant will be equipped for making twine and cotton rope. L. C. Morehouse is president of the company and W. F. Doig, at present in the east looking up equipment, treasurer and secretary.

*Georgia, Chickamauga. A. S. Bowen and D. A. Jewell of Bowen-Jewell Co., Chattanooga, Tenn., and Jewell, Ga., together with others, have incorporated under the name of the Crystal Springs Bleachery Co., with capital stock of $100,000. Complete organization will be effected about the 10th of July. It is the intention to erect a bleachery with as little delay as possible and hope to have it ready for business in from 6 to 8 months. Later they expect to build a 10,000 to 20,000 spindle cotton mill and convert the product of the cotton mill and as much of the finished goods as they can at their bag plant in Chattanooga, Tenn., from which Chickamauga is only 12 miles distant. There is an adequate water supply of most excellent quality which can be delivered to the bleachery without pumping. Coal mines 15 miles away insure cheap fuel.

Georgia, Sparta. The Sparta Cotton Mills have been organized with a capital stock of $100,000. Mr. W. F. Bryan of Athens, Ga., is president; J. D. Walker, vice president; E. A. Rozier, treasurer, and J. W. Griffins, secretary, all of Sparta.

Massachusetts, Rockland. The Rockland Elastic Fabric Company has leased the Jenkins Lane factory building for a term of years. This company was organized in February with a capital of $10,000 and manufactures for the hose supporter trade. At present they occupy space in the Rockland Webbing Company's Mill.

*Massachusetts, Taunton. The Taunton Narrow Fabric Co., recently reported incorporated with capital stock of $30,000, will start operations about September 1st, making narrow fabrics. John R. Tyler is president of the company and superintendent and Charles F. Orr, treasurer. Will use electricity and sell product direct.

*New Jersey, Passaic. The mill being built by the Passaic Cotton Mills for the manufacture of duck for automobile tires and fire hose is expected to be in operation by September 15. Thirty or forty looms will be installed. The company is capitalized at $100,000. R. P. Eagles is vice president and L. R. Cowdrey is treasurer and agent. The buying is done by the treasurer whose office at present is with Catlin & Company, New York, N. Y., who will sell the production of the mill.

*New York, Albany. The plans for the new spinning mill to be built by the Fuld & Hatch Knitting Co. are being drawn by C. R. Makepeace & Co. of Providence. There will be about 7,000 spindles installed at first, but the building will be large enough to provide for considerable increase in this number. 8s, 12s and 40s will be spun, both carded and combed. Electric drives will be largely employed and the mill be equipped with every modern improvement.

*North Carolina, Clayton. The new plant for the Liberty Cotton Mills, recently organized, and of which A. J. Barbour is president, will be equipped with 5,000 spindles, making warp and skein yarns.

*North Carolina, Globe. The Moore Cotton Mills Co. has been reported organized with capital stock of $150,000 and will establish a new plant of 5,000 spindles for making cotton yarns, 40s to 60s. This is the plant in which J. C. Moore of Lenoir and F. P. Moore of this place has been mentioned as interested.

*North Carolina, Lincolnton. An amendment has been made to the charter of the Eureka Mfg. Company increasing the capital to $100,000. This concern will manufacture cotton goods.

*North Carolina, Roxboro. Work is progressing so rapidly on the Longhurst Cotton Mill that it is expected the plant will be ready for operation in October. Individual motors for each picker, spinning and twister frame will be used. The mill will manufacture 2/30s and 2/8s yarns.

*North Carolina, St. Pauls. We are advised that $100,000 has been subscribed for the new cotton mill and it will organize within a week. The construction will begin before the first of September. Cotton yarns from 18s to 24s will be made.

*North Carolina, Taylorsville. W. B. Matheson is president of the Taylorsville Cotton Mills recently incorporated with capital stock of $100,000; A. C. Payne, secretary and treasurer and Fred H. White, general manager.

*Ohio, Elyria. Contract has been awarded for erection of a new building for the American Lace Manufacturing Co. The new plant will be 300 by 50 feet, two stories, brick.

Pennsylvania, Philadelphia. D. H. McKinley, agent of the late Philadelphia Thread Co., states that he is about to incorporate a new company for the manufacture of spool cottons, glazed threads and fancy cotton yarns. Mr. McKinley has opened an office at 240 Chestnut St., from which address he is asking for estimates on all lines of machinery for this class of work and at the same time looking for a suitable location in which to install the machinery when it is delivered. He ex-

pects to have the plant in operation early in the coming fall.

*South Carolina, Gaffney. The new mill that is being promoted has been named the Merrimac Cotton Mills. The capital stock will be $150,000 of which more than half has already been subscribed. A committee has been appointed to apply for a charter.

*South Carolina. Pickens. Manufacturing has begun in the new plant of the Pickens Cotton Mills. 15,000 spindles and 430 looms have been installed and when in full operation, 250 operatives will be employed.

*South Carolina, Rock Hill. It is reported that A. F. Ruff, W. H. Harris and W. Speight Adams, who have recently been mentioned in connection with the establishment of a $30,000 to $50,000 plant, have organized the Harris Mfg. Company.

*South Carolina, Yorkville. Work will start at once on erection of new buildings for the Lockmore Cotton Mills recently incorporated with capital stock of $100,000. This concern, of which Thos. P. Moore is president and treasurer, will make 40 to 60 Egyptian and Peeler yarns, with equipment of 6,500 ring spindles. Plant will be run by electricity.

Texas, Galveston. The Galveston Waste Mills has been incorporated with a capital stock of $5,000. J. H. Langbehn, Ben Dolson, J. E. Kauffman, and others are the incorporators. The company will establish a plant for manufacturing cotton waste and other products. They will at once order the necessary machinery.

Enlargements and Improvements.

*California, Oakland. The California Cotton Mills recently reported increasing capital stock will make no additions to the plant.

*Connecticut, Norwich. Work on improvements has begun at the Mercer Mfg. Company, formerly the Pequot Mills. Spinning machinery has been temporarily installed in Mill No. 2 while alterations are being made in Mill No. 1. The intention is to make the changes without interrupting the regular output of the mill more than is absolutely necessary, as plenty of orders are on hand.

*Connecticut, Willimantic. Preliminary work has been started for the foundation of the American Thread Company's new mill. The new building will be of brick, 310 feet long, 75 feet wide and five stories high. It is thought that the new mill will be called No. 6 and will be used as a finishing department.

Georgia, Eastman. At the annual meeting of the Eastman Cotton Mills, it was decided to increase the stock from $100,000 to $175,000 and to practically double the equipment of the plant.

*Georgia, Quitman. The report that the Atlantic & Gulf Mills were to add 15,000 spindles is incorrect. They are adding $20,000 worth of new card room machinery to balance the spinning department. The machinery has all been bought.

*Georgia, Tennille. The Tennille Yarn Mills, reported to install additional machinery, advise us that they contemplate adding 5 cards and 3 speeders to improve the quality of the product, but will make no increase of spindles.

Massachusetts, Chicopee. The Dwight Mfg. Company has placed a contract for a new cotton storage warehouse. The building will be 443 by 60 feet and six stories high and the estimated cost is $125,000.

Massachusetts, Clinton. The Lancaster Mills are installing 100 new looms in the plant to replace a number of old style ones.

Massachusetts, Easthampton. It is reported that Geo. S. Colton, manufacturer elastic cord web, has bought the Sawyer & Wolfe Mill. He will install machinery and begin manufacturing as soon as possible.

Massachusetts, Fall River. The Barnard Mfg. Company is to add 1,500 spindles during the summer.

*Massachusetts, Fall River. Work has been started on the five-story and basement brick spinning mill of the Kerr Thread Mill. The new building will be 150 by 300 feet, and the estimated cost is $500,000. A large steam turbine has been ordered of the Allis-Chalmers Co.

Massachusetts, Fall River. The Merchants Manufacturing Co. is replacing mules recently taken out, with 13,000 spinning frame spindles.

*Massachusetts, Housatonic. The Monument Mills have improvements under way which will increase their capacity from 25 to 50 per cent. The machinery is now running in the 128 by 60 feet addition which was recently built. Foundations have been laid for another addition 112 by 84 feet and five stories high which will be equipped with 12,000 spindles. It is reported that still another building will be built to increase the weaving capacity.

*Massachusetts, Millbury. The West End Thread Company has awarded the contract for their new store-house.

*Massachusetts, New Bedford. Machinery is being installed in the new spinning mill of the Taber Mills. In all slightly over 60,000 mule and ring spindles will be installed, which will supply yarn for 1,400 looms. The mill is 376 feet long, three stories high and all the machinery will be electrically driven.

*Massachusetts, New Bedford. At the annual meeting of the Potomska Mills, the advisability of adding a weave shed to hold about 1,000 looms was considered. It is reported that some action will be decided upon shortly.

*Massachusetts, Southbridge. Work will start Aug. 1st on addition for the Central Mills Company, replacing part of old mill, which has been torn down and providing for increased production. All old machinery is to be replaced with new, viz., 2,000 spindles and 50 looms. It is expected to have the new addition in operation by Jan. 1st.

*Massachusetts, Waltham. The Boston Manufacturing Co. has installed 240 new and improved looms in the mill.

New Hampshire, Manchester. It is reported that $300,000 will be expended for machinery and other improvements in the Stark Mills.

New Jersey, Newark. The Clark Thread Co. is making extensive improvements to its plant. Fifty-four Nasmith combers, nine ribbon and nine silver lap machines have been ordered through Stephen C. Lowe, the American agent for John Hetherington & Sons, Ltd., of Manchester, England.

North Carolina, Albemarle. The Efird Mfg. Company has recently installed six new spinning frames, which makes the total number of spindles about 17,000. It is stated that plans are being made for two additional warehouses for storing cotton.

*North Carolina, Charlotte. It is stated that Geo. A. Howell & Sons, whose plant was destroyed by fire in June will rebuild and continue the manufacture of cotton yarns.

*North Carolina, Cooleemee. We have been advised that the Cooleemee Cotton Mills, now owned by the Erwin Cotton Mills Company of West Durham, N. C., and known as the Cooleemee plant of the Erwin Cotton Mills Company, will install 8,000 additional spindles.

North Carolina, Double Shoals. It is reported that the Double Shoals Cotton Mills will soon expend $20,000 for new machinery.

*North Carolina, Draper. Contract has been awarded by the German-American Company for the 10,000 additional spindles to be installed in the mill.

North Carolina, Gibsonville. The Gem Yarn Mills are making additions which will nearly double their capacity.

*North Carolina, Newton. Contract has been awarded by the Catawba Cotton Mill for 3,360 spindles to be added to the present equipment.

*North Carolina, Newton. The new addition to the Catawba Cotton Mill is expected to be completed about Jan. 1st, 1908. Will add 3,360 spindles to present equipment of 3,000 spindles. Plant is run on 30/2 warps and skeins. Preparations are being made to use electric power.

North Carolina, Spray. It is reported that the Spray Cotton Mills are considering erection of a cotton mill at Walnut Grove.

*North Carolina, Taylorsville. We have been advised that the equipment for the addition to the Alspaugh Cotton Mill is to consist of 1,600 spindles, 2-inch rings.

*North Carolina, Wadesboro. Contract has been awarded by the Wadesboro Cotton Mills for an addition to the plant in which 4,000 additional spindles will be installed.

*Oklahoma, Guthrie. The Pioneer Cotton Mills will start work about Sept. 1st on the new addition reported to be built to the mill. About 3,000 new spindles will be installed. It is expected to have the new annex in operation by May.

Pennsylvania, Philadelphia. The Taylor Textile Co., 1615 Foulkrod St., Frankford, manufacturers of upholstery goods, lap robes, etc., on 21 looms, have recently erected a new corrugated iron building to be used for storage purposes. They are very busy.

Pennsylvania, Philadelphia. Baxter, Kelly & Foust, Inc., whose factory is located in the Bromley Mills at Jasper and York Sts., where they are manufacturing cotton plushes on 15 looms are reported to increase the capacity of the plant. An order for 20 more looms has recently been placed. The main office of the company is at 496 Broome St., New York. The officers are George E. Kelly, pres.; John E. Baxter, treas.; Wm. H. Foust, sec., and John J. McKenna, supt. and buyer. The production is sold direct from their offices in New York. A dyeing and finishing plant has been installed.

Pennsylvania, Philadelphia. The Philadelphia Winding Company has moved into the Lomax Mill Bldg., Jasper and Orleans Sts., where it has greater capacity.

*Rhode Island, Centreville. The work of building an addition to the Warwick Mills Company has so far progresed that they have commenced the installation of machinery.

*Rhode Island, Pawtucket. The Rhode Island Vienna Braid & Tape Co. has been removed from the old plant at Phillipsdale, to new mill at this place.

Rhode Island, South Scituate. A new double water wheel has been installed in the Joslin Mfg. Company.

*Rhode Island, Warren. A part of the machinery in the new spinning mill of the Warren Mfg. Company is being operated. The rest of the machinery is being set up.

Tennessee, Knoxville. The Knoxville Cotton Mills is erecting a building for the manufacture of knitting yarns from 20s to 24s. 7,000 new spindles will be installed and it is estimated that fifty additional hands will be employed.

*Tennessee, Shelbyville. New machinery is being installed in the Sylvan Cotton Mills.

Texas, Houston Heights. It is reported that the Oriental Textile Mills contemplate erecting another large cotton mill. The company now operates a plant on press cloths for oil mills and proposes making general lines of cotton cloth.

Texas, West. The Brazos Valley Cotton Mills will add 2,080 spindles, contract for which has been awarded.

Mills Starting Up.

*Rhode Island, Centreville. Operations have been started in the new weave room of the Warwick Mill.

Virginia, Danville. Operations have been resumed in the Riverside Cotton Mills which have been shut down for some time owing to washing away of the flood gates.

Mills Shutting Down.

*Pennsylvania, Philadelphia. The Star & Crescent Mills Co., Hancock St. and Lehigh Ave.,

which recently went into the hands of a receiver, has been shut down and is for sale. The plant contains 260 looms which were operated on Turkish towels, robes and dress goods, with a bleach house.

WOOLEN.

New Mills.

*California, Marysville. Machinery is being installed in the building of the Marysville Wool Scouring Company. It is expected that this company will be in operation within a few weeks.

Michigan, Kalamazoo. A plant for the manufacture of woolen blankets is being equipped at the cost of $25,000. Manufacturing is expected to commence in a few weeks.

*New Jersey, Camden. The Merrimack Mfg. Company incorporated early in the year will locate here as soon as the machinery contracted for is finished.

Pennsylvania, Philadelphia. The Kilmarnock Textile Mfg. Company, makers of art squares, have installed thirty broad looms in the Batty Mill at the corner of Adams and Emerald Sts. The officers of the company are Phillip T. Latuen, president, and Charles L. Fetterly, who is secretary and general manager.

Pennsylvania, Philadelphia. Messrs. O'Neill & Co., who have been identified with the rag business with a warehouse at 5th and Clearfield Sts., have purchased the building formerly occupied by W. L. Wright at Germantown Ave. and Ruffner St., which they are equipping with the machinery for the manufacture of cotton and woolen wastes and shoddies. The waste machinery is already in operation with the shoddy machinery to be put in within a few months.

Enlargements and Improvements.

Connecticut, Torrington. The Warrenton Woolen Company is to erect a new mill. The location has not yet been decided upon and nothing has been contracted for.

Massachusetts, Clinton. Work is being rushed very rapidly on the foundations for a new mill being erected by the Bigelow Carpet Company.

Massachusetts, Collinsville. The Beaver Brook Mill, with exception of the finishing department, has been practically closed. Repairs are to be made about the mill.

Massachusetts, Fitchburg. The American Woolen Company is to build a two-story repair and machine shop, 60 by 28 feet, at the Beoli Mills.

*Massachusetts, Franklin. The Franklin Rug Company, which was organized recently, has purchased some carpet cleaning machinery.

*Massachusetts, Hinsdale. The Hinsdale Woolen Company's mill has been purchased by Thos. Kelly & Co., of Boston. The plant will be remodelled and equipped for manufacturing blankets.

*Massachusetts, Lowell. Work on the new building being erected by the U. S. Bunting Company is progressing very rapidly. The brick work is completed up to the fourth story.

Massachusetts, Lowell. A new building, 110 by 70 feet, five stories, is under way for the Massachusetts Mohair Plush Co.

Massachusetts, Lowell. Contract has been awarded for a new five and six story brick mill 218 by 62 feet, and annex six stories, 49 by 62 feet, to be built by the Bigelow Carpet Co.

Massachusetts, Middleboro. The Nemasket Worsted Co. proposes adding two 120 h. p. boilers.

Massachusetts, Millville. Frederick J. Pitts has purchased the buildings formerly leased by the James Pitts & Son Company from the Blackstone Mfg. Co. Mr. Pitts also acquires the water privileges and a number of tenement houses. It is reported that additions will be made to the mill, and new tenement houses built and general improvements made in the village.

*Massachusetts, North Adams. The work on the new weave shed of the Waterhouse & Howard Mill is progressing so rapidly that it probably will be completed by the end of this month. The walls are up and the roof is partly on.

*Massachusetts, North Adams. Ground has been broken for a new dye house to be added to Waterhouse & Howard Mill. The new building will be of wood, 85 by 40 feet, one story high, and is to be finished by September. It is estimated that the weave shed now being completed and the new dye house will require about 150 additional hands.

*Massachusetts, North Adams. A number of new looms will be placed in the mills of the Mayflower Company.

*Massachusetts, Rochdale. Work has begun installing machinery in A Howarth & Sons' new mill. When complete all the carding machinery of the old mill will have been transferred to the new plant.

*Massachusetts, Spencer. It is reported that preparations are being made for rebuilding the Taylor Woolen Company's No. 2 Mill, recently reported destroyed by fire. This is the mill which was formerly known as the Wicks Mill and which was purchased by the Taylor Woolen Company last September.

Massachusetts, Uxbridge. The Uxbridge Worsted Co. has installed a new piece-dyeing machine in the plant.

Massachusetts, Worcester. The Riverside Mills, manufacturers of worsted and mohair yarns, etc., have increased their plant by the addition of 24 spinning frames and other machinery, supplied by Arthur Stead, the well known dealer in worsted machinery, located at Bank and Chestnut Sts., Philadelphia.

New Hampshire, Newport. The Brampton Woolen Co. contemplates erection of a new office building. They propose installing six new looms in space now occupied as office.

*New Jersey, Camden. The addition to the Highland Worsted Mills is being rapidly advanced and it is expected that the machinery will be in operation early in August.

*New Jersey, Passaic. The addition to be made to the Dundee Textile Company is for the job dyeing department, and will be 75 by 100 feet. About one hundred people will be employed.

Pennsylvania, Darby. The Griswold Worsted Co. is installing a department for manufacturing voile yarns, with capacity of 5,000 lbs. per week.

*Pennsylvania, Lenni. The Yorkshire Worsted Mills are installing a new 150 h. p. turbine in their plant. They have also made improvements to their dyeing and finishing departments.

Pennsylvania, Philadelphia. Messrs. Kerr, Saylor & Co., 1822-28 Cadwallader St., manufacturers of Brussels carpets and rugs, with 8 looms, have recently added 11 new looms and an entire equipment of warping machinery to their plant. Production of this plant is sold direct.

Pennsylvania, Philadelphia. Architects have completed plans and are inviting bids for the erection of a second story measuring 130.5 by 52.10 feet to the wool scouring plant at Second St. and Erie Ave., owned by Carl Grubnau, whose main office is at 112 Arch St.

*Pennsylvania, Philadelphia. Contract has been let and work started on erection of the new mill for F. A. Bochman & Co., Cambria and Phillip Sts.

Pennsylvania, Philadelphia. Messrs. Ballinger & Perot, Architects and Engineers, have invited revised bids for the erection of a new mill on Collins St. above Allegheny Ave., for C. H. Masland & Sons, manufacturers of carpets and rugs at Collins and Westmoreland Sts. Present equipment comprises 150 Ingrain and 123 Velvet looms. The building will be 172 by 88 feet, one story and basement, with walls of brick and columns and floors of reinforced concrete construction with wood truss roof, and slag roof covering. There will also be a boiler room in the basement and a radial brick stack 3 feet. 6 inches, in diameter, 80 feet high.

*Pennsylvania, Philadelphia. Work is progressing on the new mill of the Erben, Harding Company.

Pennsylvania, Philadelphia. An additional story, 53 by 130 feet, is to be added to the wool warehouse of Carl Grubnau at Second St. and Erie Ave.

Pennsylvania, Philadelphia. John Boggs' Sons will install thirty looms for the manufacture of ingrain carpets at the new mill at Howard and Berk Sts.

Pennsylvania, Philadelphia. Thirty-eight new looms for the manufacture of men's wear have been added to the plant of Wright & Hall Textile Co. at Jasper & Orleans Sts.

Rhode Island, Allenton. The Allenton Woolen Co. has installed 10 new looms in the plant.

*Rhode Island, Pawtucket. Work has been started on the new addition, 225 by 110 feet, 2 stories, for D. Goff & Sons.

Rhode Island, Woonsocket. The Montrose Mill has been completed and the machinery is arriving daily. Seventy-two looms will be installed and it is expected that the plant will be in full operation by September.

West Virginia, Grafton. Contract has been awarded by the Webster Woolen Mills for installation of new machinery for making high grade blankets.

Mills Starting Up.

Massachusetts, Agawam. Work will be resumed at the Agawam Woolen Company on next Monday after a week's shut-down.

*Massachusetts, Hinsdale. Operations will be started about Aug. 1st in the Hinsdale Woolen Co.'s mill under management of Thos. E. Kelley & Co., of Boston. W. E. Clogher is superintendent of the plant, equipped with 11 sets cards and 65 looms for making wool blankets.

*Rhode Island, Woonsocket. The Reeves Spinning Co. has started operations.

Mills Shutting Down.

Oregon, Pendleton. The Pendleton Woolen Mills will be closed as usual during the summer months.

Massachusetts, North Billerica. The Talbot Mills will close August 26th to give the employes a vacation of two weeks.

Pennsylvania Philadelphia. The Abbott Manufacturing Co., Hancock and Somerset Sts., manufacturers of dress goods and men's wear, with equipment of 12 looms, has shut down its plant. It is reported that the machinery has been sold to other parties.

Pennsylvania, Philadelphia. The Scott, Potter & Vance Textile Co., who recently took over the business of Scott, Potter & Howard, operating 22 looms on serges, suitings and novelties in the Cope Mill at Wayne Junction, have shut down the plant and, it is said, will not start it up again.

Rhode Island, Bridgeton. The Falcon Worsted Mills will shut down for two weeks to give the employes a vacation. Operations will be resumed August 12th.

Rhode Island, Pascoag. The Hawthorne Worsted Mill, operated by Messrs. Mellor & Schwartz, has been closed for an indefinite period.

For Knitting Mill News, see Knitting Department.

SILK.

New Mills.

New Jersey, Paterson. William Doherty has started fifteen ribbon looms in Barbour's Spruce Street Mill. It is expected that this number will be increased later on.

*New Jersey, Paterson. Albert Herzog is president, Paul Isler, vice-president and Henry

Bircher, treasurer and secretary of the Standard Woven Label Co., recently reported incorporated with capital stock of $50,000. As previously stated will manufacture silk woven labels, and plain and name ribbons, with equipment of 14 double looms.

New Jersey, Paterson. L. A. Rey is reported to start a plant for manufacturing broad silks at 109 East 17th St. It is expected that plant will start with from 30 to 40 looms. Mr. Rey formerly conducted a silk throwing plant.

New Jersey, Paterson. Thos. Cartwright, formerly with Collins & Co., will start a plant in the Piaget Mill, for making broad silks. Will start with equipment of 17 looms.

New York, Dunkirk. A new silk concern to be known as the C. R. Morley Mfg. Company will soon be incorporated with capital stock of $40,000. The plant will manufacture silk fabrics, including gloves. The incorporators are Chas. B. Morley and Wallace G. Hirth of Amsterdam and John T. Shannahan of Buffalo.

*New York New Berlin. Operations will soon start at the New Berlin Silk Mill, with equipment of 72 looms.

Enlargements and Improvements.

*Canada, Ontario. Peterboro. The Colonial Weaving Company, Ltd., is building a mill, 200 by 60 feet, and will issue $50,000 of additional stock. This company manufactures woven labels in cotton and silk, top facings, straps, skirt bandings, etc. I. J. Jamieson is president and W. S. Davidson is treasurer.

Connecticut, South Manchester. Cheney Bros. have awarded Beattie & Cornell, of Fall River, the contract for a new mill to be built for them.

New Jersey, Paterson. The Deiss Hat Band Co. has leased the mill on E. 13th St. for a term of years and will remove from present location at once. The new quarters will permit greater facilities and more machinery may be installed later.

New Jersey, Paterson. Robert Love has purchased the broad silk plant of the Walton Bros. and expects to combine his present plant with it in the Piaget Mill.

New Jersey, Paterson. The Mason Silk Mills are building a dye house. The equipment to be installed will be for piece and skein dyeing.

New Jersey, Paterson. Additional throwing machinery is to be installed in Hopper & Scott's mill.

New Jersey, Paterson. It is reported that the Columbia Silk Co. expects to add more looms.

New Jersey, Paterson. Extensive improvements are contemplated by the Passaic Silk Co.

New York, Binghamton. The plant of the Binghamton Silk Mill Co. is to be enlarged from its present capacity of 80 looms to 200 looms.

New York, Brooklyn. Twelve new ribbon looms have recently been installed in Wm. Salmon's braid mill, 723 Lorimer St., and 12 more will be installed later. Ribbons and hat bands will be made in addition to braids and trimmings.

New York, Lyons. A new addition has been made to the Gloversville Silk Mills and over 40 new power machines have been installed for glove sewing.

Pennsylvania, Philadelphia. It is reported that the Chefoo Silk Mills, 2739 Fairhill Street, is to add sixteen broad looms to their equipment on account of increased business.

Pennsylvania, Philadelphia. It is reported that a brick addition will be built for the John Mawson Hair Cloth Co., manufacturers of hair cloth and shirt waist materials. The estimated cost is $13,500.

Pennsylvania, Philadelphia. S. Rosenau & Co., manufacturers of millinery trimmings and braids on 65 looms, 125 knitters and 3000 braiders, have recently bought the properties adjoining their present plant at 445 to 449 Darien St. for the sum of $26,800. Upon this site the company will have erected a new building six stories high of slow burning construction measuring 50 feet on Noble St. and 110 feet on Darien St. William Steele & Sons Co., well known as builders of mills of this kind are preparing the plans. About $100,000 will be expended.

Mills Shutting Down.

New Jersey, Paterson. The firm of Walton Bros., lately run under the name of Frank Walton, has been discontinued.

MISCELLANEOUS.

*Georgia, Chickamauga. At recent meeting of the stockholders of the Crystal Springs Bleachery Co., D. A. Jewell was elected president; T. G. Montague, vice-president and A. S. Bowen, secretary, treasurer and general manager.

*Massachusetts, Gardner. The company known as the Oxford Fibre Company has adopted the name of the Oxford Linen Company. It is reported that a bleach house, 100 by 40 feet, and a storehouse, 112 by 60 feet, will be added to the plant at Riverview. Another mill is being contemplated to run parallel with the present mill. If this is built, it will probably be 400 by 60 feet and three stories high.

Massachusetts, Indian Orchard. Work has been started on repairing the dye house of the Indian Orchard Co.'s plant.

Massachusetts, Millbury. The West End Thread Company is to erect a new storehouse, 50 by 60 feet, 2 stories.

*Massachusetts, North Dighton. Work is well under way on the new plant for the Chadwick Print Works. A new two-story addition, 150 by 90 feet, is to be erected, with separate engine and boiler house. It is expected that the plant will be ready to start up about the middle of September.

New York, Cohoes. The Cohoes Dyeing Works has increased its capital stock from $10,000 to $20,000.

Pennsylvania, Philadelphia. The Union Dye Works, dyers of hosiery has gone out of business.

*Pennsylvania, Philadelphia. The Nicetown Dye Works have completed a large addition to the plant.

Pennsylvania, Philadelphia. Contract has been awarded for rebuilding the Globe Dye Works, Oxford and Worth Sts., Frankford. The new building will be 100 by 46 feet, three stories high.

Pennsylvania, Philadelphia A charter has been applied for by the National Dyeing & Finishing Co. The company will start operations at Jasper and York Sts., where they have rented part of the dye house formerly run by the Bromley Bros. Carpet Co., and which they will equip for the dyeing and finishing of hosiery and for the dyeing of skein yarns. They expect to be in operation July 15th or 1st of August.

*Pennsylvania, Philadelphia. The new building of the Globe Dye Works, Oxford and Worth Streets, Frankford, contract for which has been awarded, will be of fire-proof construction. As reported last week, building will be 100 by 46 feet and three stories high.

Pennsylvania, Philadelphia. The Philadelphia Mercerizing Co., who recently sold out its machinery and went out of business, its mill having been taken over by the Hulton Dyeing & Finishing Co. to be used as a branch plant, is reported to resume business and are looking over available buildings.

*Pennsylvania, Philadelphia. The John H. Hughes Co. is installing three new coning machines and two spoolers.

*Pennsylvania, Reading. The Reading Dye Works' new buildings have been completed. The main building is of brick and it will be occupied by the offices, shipping and finishing departments. Adjoining the main building is a one story building, 33 by 120 feet which has been equipped as a dye house and imported machinery installed. The engine and boiler house is a separate building 38 feet square, and built of concrete.

*Rhode Island, Central Falls. The Richardson-Foster Company, reported as being incorporated, is capitalized at $40,000. This company will manufacture, bleach, dye and mercerize fancy cotton, woolen, linen and other textile fabrics.

Wisconsin, Albany The Black Hawk Mills Co which is a part of the linen mills at St. Paul Park, Minn., will shut down as a result of the destruction by fire of the mill at the latter place.

FIRES.

New York, Cohoes. Fire which started in the rag picker destroyed the mill of W. Lowenthal & Company.

North Carolina, Fayetteville. The dye house of the Holt-Williamson Mfg. Co.'s plant, has been destroyed by fire. The loss is estimated at $10,000, covered by insurance.

Pennsylvania, Carlisle. The Carlisle Cotton Mill, owned by Heilig Bros., has been partially destroyed by fire. The loss is estimated at $5,000 partly covered by insurance.

Pennsylvania, Columbia. Fire of unknown origin on July 9th destroyed the plant of the Triumph Embroidery Co. The loss, estimated at $75,000, is reported as partly covered by insurance.

Rhode Island, Hope Valley. The store-house of the Hope Valley Woolen Mills has been destroyed by fire. The loss is estimated at $12,000, fully covered. The cause of the fire is unknown.

FAILURES AND SUSPENSIONS.

Canada, Ontario, Markham. It is reported that Gaunt & Jessop, who have been manufacturing meltons, serges, etc., in the Maple Leaf Woolen Mills, have assigned to J. P. Langley.

Connecticut, Meriden. David Matchett, who operated a small silk mill, has filed a petition in bankruptcy.

Massachusetts, Worcester. A report states that the Brigham Woolen Company has been petitioned into involuntary bankruptcy for three creditors whose claims amount to about $3,000.

*Rhode Island, Pascoag. John J. Lace, Jr., of Providence and Pascoag has been appointed temporary receiver for the Hawthorne Worsted Mill.

South Carolina, Cross Hill. An involuntary petition in bankruptcy has been filed against the Cross Hill Oil & Hosiery Mills.

FACTS AND GOSSIP.

*Canada, Montreal. The Canadian Spool Cotton Company is considering plans for the erection of a new mill.

*Canada, New Brunswick, Marysville. The Canadian Colored Cotton Mills Company has bought the Alexander Gibson Railway & Mfg. Company property known as the Gibson Mill.

Canada, Ontario, Toronto. The Seaforth Woolen Company, Ltd., has changed its name to the W. E. Southgate & Company, Ltd.

*Connecticut, Middletown. The dissolution of the Merchants' Silk Co., recently secured by the York Silk Mfg. Co., York, Pa., has been effected. It is understood that the plant will be enlarged and the capacity greatly increased.

*Connecticut, Torrington. The plant of the Belfast Mesh Underwear Co. has been sold to E. J. Kelley. It is not known at present what use will be made of the buildings. The machinery and stock will be sold at auction before Aug. 1st.

*Georgia, Bremen. J. J. Manghan, who was mentioned in connection with the proposed cotton mill, called a meeting to consider plans. It is stated that prospects for a new mill are very good.

*Georgia, Calhoun. Judge T. W. Harbin has been elected president of the new cotton mill organization, and the following have been elected directors: T. W. Harbin, A. W. Chastain, W. L. Hines, L. R. Pitts, H. A. Dover, O. N. Starr, F.

L. Hicks and Dr. G. W. Mells. The new organization is capitalized at $100,000.

Georgia, Fort Valley. It is reported that C. S. Taylor and A. G. Carithers are interested in project for establishing a new hosiery mill at this place.

Georgia, Junction City. Subscription books have been opened for the organization of a cotton mill with a proposed capital of $200,000.

*Georgia, Woodbury. We have been advised by J. D. Sutton that he is endeavoring to raise funds to build a cotton yarn mill at this place.

*Kansas, Topeka. The Topeka Woolen Mill (Oakland) has purchased the plant of the Western Woolen Mills and operations in the latter plant have been resumed under the new management. The pants department, which was operated by the mill some time ago, will be reinstalled and run under managegment of J. F. McAfee about Sept. 1st.

*Massachusetts, Boston. The Acme Thread Company is to occupy Mann's Mill, which is being put in thorough repair for them.

*Masachusetts, Charlton City. The Akers & Taylor Mfg. Company has been incorporated with a capital stock of $25,000. It will take over the plant of the Akers & Taylor Company, which was recently reported financially embarrassed. Satinets and similar grades of woolen goods will be manufactured.

Massachusetts, Leicester. It is reported that a corduroy factory will be started which will give employment to about 300 hands.

*Massachusetts, Methuen. A committee has been appointed to appraise the property of the Tekcips Dyeing, Weaving & Finishing Company which made an assignment last May.

*Massachusetts, New Bedford. The contract for the erection of Manomet Mill No. 2 has been awarded by the B. F. Smith Co. of Pawtucket, R. I. Work will be begun immediately. It is understood that the plans call for the structure, 113 by 500 feet and four stories high.

*Massachusetts, New Bedford. The company incorporated for the manufacture of bandings is named the Mt. Pleasant Banding Corporation instead of the Mt. Pleasant Banding Company, previously reported.

Missouri, St. Louis. The Columbia Embroidery Company has been incorporated with a capital stock of $2,000. Walter C. Stein, Geo. H. Fenwick and Homer McKnight are the incorporators.

New Jersey, East Orange. The Ampere Silk Mill has been incorporated with a capital stock of $100,000. Jerome D. Debney, Frank C. Ferguson and Harry A. Picking are the incorporators.

New Jersey, Jersey City. The Holloway Dyeing Co. has been incorporated with capital stock of $100,000 for dyeing and bleaching purposes. Geo. G. Tennant and Joseph H. Dwyer are mentioned as interested.

New Jersey, Paterson. The F. J. Minet Silk Mfg. Co. has been incorporated with capital stock of $50,000. Among those mentioned as interested are F. J. Minet, J. E. Leferty and E. A. Deidel.

*New Jersey, Paterson. It is reported that Amiel Coney, recently reported to start a broad silk mill, has purchased the Haledon Tapestry Co.'s plant and will operate same under old name.

*New Jersey, Paterson. The plant and machinery of Joseph White, silk manufacturer who failed, have been sold at auction. Samuel R. Jacobs, who held a second mortgage upon the property, bought it for $12,000. Thomas Van Dusen, representing William Ryle & Company, bought a separate lot of machinery for $1,250.

*New York, Birmingham. It is reported that plans are being made for the enlargement of the building formerly occupied by the Binghamton Linen Company. The addition will be used to bring the equipment up to one hundred looms and for a modern bleachery. It is stated that a North Carolina concern is to occupy the building.

New York, Brooklyn. The Williamsburg Embroidery Works has been incorporated with a capital stock of $75,000. Morris Cohen, Herman Musseff and Samuel Bichwit are the incorporators.

New York, Delhi. The Delhi Silk Co., which recently opened an office in New York City, has made an assignment for the benefit of the creditors. Angelo De Villeneuve of Paterson, N. J., is the assignee.

*New York, Schaghticoke. A permit has been issued to the receivers of the Schaghticoke Woolen Mills to continue operating the plant until Feb. 1, 1908. Under the receivership of Messrs. Tolhurst and Roy and the management of the present superintendent, J. M. Masson, the reorganization of the working staff, and other systems, the company was able to cut down expenses at least 25 per cent. lower than the previous average that was made at this mill. In the short time that Mr. Masson has been acting as superintendent, and the mill not running to full capacity, they have been able to reduce the expenses and the profit on the production has greatly increased.

*North Carolina, Brevard. The Transylvania Mill Co. has been organized with capital stock of $100.000. J. W. McMinn is president of the company, J. A. Galloway, vice-president and C. M. Cooke, secretary and treasurer.

North Carolina, Catawba. J. H. Pitts and J. H. Lawrence are among those interested in organizing a company to build a cotton mill at this place. About $50,000 has been reported solicited toward the capital stock.

*North Carolina, Davidson. The Delburg Cotton Mills have been reported organized with capital stock of $100,000. This is the plant in which J. P. Munroe, W. R. Grey and A. B. Young have been mentioned as interested.

*North Carolina, Newton. It is reported that the proposed new cotton mill has become a certainty. The stock has been subscribed and the mill will be built at once. The officers are L. H. Phillips, president; J. C. Yount, Geo. Setzer, J. A. Gaither, Ely Fry and L. N. Setzer, directors.

*North Carolina, Roaring River. J. S. Paterson of Spray has purchased the plant, water power, etc., of the Damask Cotton Mfg. Company. It is reported that Mr. Paterson will organize a company for the purpose of enlarging and operating the plant.

North Carolina, St. Pauls. It is reported that a movement is under way for the organization of another cotton mill for this vicinity. A considerable amount of stock has already been subscribed and articles of incorporation will be filed shortly. Mr. A. R. McEachern of St. Pauls and R. A. Lawrence of Lumberton are reported as interested.

North Carolina, Selma. A project is reported under way for erecting a plant here for making cotton rope and twine. M. C. Winston and N. E. Edgarton are reported as interested. It is proposed to utilize the waste and card strips from mills in which the above parties are interested.

*North Carolina, Washington. A meeting is to be held in July to perfect arrangements for the proposed cotton mill recently reported. The new mill will be capitalized at $200,000. W. E. Jones, W. N. Cooper, Edward A. Mallison and Richard A. Braggaw are actively interested.

Pennsylvania, Hazelton. It is reported that a bleaching establishment will be moved here and that a building formerly used for the manufacture of flax goods will be remodeled at once for its occupancy. The name of the new concern could not be secured but it is understood that it will re-

Pennsylvania, Philadelphia. Harry Bennett will continue the business of the DeLyte Tapestry Co. under the old name. The partnership held by Mr. H. B. Newton has been taken by Mr. Bennett.

*Pennsylvania, Philadelphia. James Henry (care Thos. Henry's Sons Co.) and Geo. W. Chapin, both creditors of Charles Weber, recently petitioned into bankruptcy, have been appointed receivers.

Pennsylvania, Philadelphia. The Columbia Mills will erect two brick buildings at Fifth St. and Columbia Ave. One will be 32 by 35 feet, four stories high and basement, and the other 48 by 70 feet, one story and basement.

Pennsylvania, Philadelphia. It is reported that the J. Spencer Turner Company has closed its carding and spinning mill at Coral St. and Boston Ave.

Pennsylvania, Philadelphia. Creditors have filed a petition to have Charles Weber adjudged an involuntary bankrupt. The creditors and amounts claimed are Thomas Henry & Sons, $7,393.87; George W. Chapin, $2,791.09, and the Indelible Dye Works, $1,884.28. Mr. Weber has been manufacturing hosiery for many years at 2014-20 Orleans St., where he is running 80 spring and 200 latch needle knitters and 12 sewing machines, employing 200 hands.

Pennsylvania, Philadelphia. Upham Bros. & Co., now located at 241-43-45 Arch St. manufacturers of sewing and seaming threads and coners of all kinds of yarns, have recently acquired the plant formerly run by the Philadelphia Thread Co. at Hancock and Oxford Sts. This concern, which is now about to incorporate its business under the name of Upham Bros. Co., with a paid in capital of $25,000, state that the machinery now in the building and formerly operated by the Philadelphia Thread Co., will be taken out and the plant equipped throughout with a new line of machinery for the manufacture of glazed yarns and sewing cottons, making a specialty of mercerized yarns for which there is now such a large demand. The plant will contain 300 cone spindles, 150 tube spindles. 12 dressers and 3 tables of automatic winders for sewing cotton. It is their expectation to have the plant in full operation on or about July 15th. They state at this time they have enough orders on hand to keep them running full and over time for six months to come.

Pennsylvania, Philadelphia. E. Sutro & Son, manufacturers of hosiery at Clearfield & Thompson Sts. have recently incorporated their business under the name of E. Sutro & Son Co., with a capital of $200,000. The incorporators are Paul E. Sutro and William K. Anderson of this city and George K. Kirkham of Montclair, N. J. The corporation will also take over the Indelible Dye Works and the Radcliffe Hosiery Mill of Bristol, Pa., all of which are owned by the Messrs. Sutro and run by Sutro & Son.

Pennsylvania, Philadelphia. Harry Polasky and G. Silverberg, who started the New Process Gas Mantle Co. at 31 Bank St. about six months ago, have dissolved partnership. The business in the future will be conducted by Mr. Polasky, who is operating 3 knitters on incandescent gas mantles. Mr. Polasky was formerly connected with the Reliable Gas Mantle Company located in this city, from which he retired to start up this business on Bank St.

Pennsylvania, Philadelphia. The McCauley Dyeing Co., with James J. Diamond, Mary I. Allen, Katharine R. Allen and Martina T. Rosney, as incorporators, has applied for a charter. The McCauley Dyeing Co., which is located at 2109 E. Somerset St., is one of the best known dyers of fast black on hosiery in this city and at this time is very busy.

Pennsylvania, Philadelphia. The Keystone Curtain Manufacturing Co., with a capital of $50,000 and the following officers: Ernest Heller, president; Charles Stretch, Jr., secretary, and George McDougal, treasurer, have succeeded to the business of the Tilton & Keeler Mfg. Co., located at American and Diamond Sts., where they have been manufacturing lace curtains and bed sets with 80 sewing machines, selling the production direct.

Pennsylvania, Philadelphia. The ingrain carpet manufacturing plant consisting of 16 looms owned by William Dodds and located at Mascher and York Sts., where he recently went into bankruptcy, has been purchased by and consolidated with the plant of William Erskine, in the same building, who manufactures the same line of carpets. Mr. Erskine is now running 32 looms and is very busy.

Pennsylvania, Philadelphia. The Leicester Corporation has been reported incorporated with capital stock of $1,250,000 for manufacturing cotton, woolen and linen goods. Blair Thaw Scott, Ferris

A. Mitchell and J. Chester Freeland are mentioned as interested.

*Rhode Island, Hope Valley. The property of the Taylor Mfg. Co. recently reported bankrupt was sold for $7600.

*Rhode Island, Pascoag. The Hawthorne Worsted Mill, previously reported in the hands of a receiver, has been started up to run out stock in process.

*Rhode Island, Pawtucket. The property of the New England Thread Co. has been sold at auction. The main building and land was bought by Catherine Taylor, the mortgagee, the bid being $10,000. O'Connor Bros. of Boston, bought a small part of the land for $1,005. Machinery was disposed of in small lots to different purchasers.

*Rhode Island, Pawtucket. A third dividend has been given the creditors of the New England Thread Company. With the previous dividends, this aounts to 45 per cent. which has been paid so far.

*Rhode Island, Providence. Mendell W. Crane has been elected trustee of the English Finishing Co., recently reported in bankruptcy.

*South Carolina, Fairmont. The Tyger Cotton Mills have been sold at auction to H. C. Fleitmann, of New York City and Lewis W. Parker. It is not yet known just what will be done with the plant, but expected as soon as court confirms sale that company will be re-organized and operations resumed.

South Carolina, Gaffney. It is reported that a new mill for this place is in progress, and that $50,000 of stock has been subscribed. It is intended to use electric power and make it up to date in every respect. Dr. W. C. Hendrick, J. A. Carroll and J. C. Jeffries are reported as largely interested in the new progress.

*Tennessee. Bristol. J. M. Barker and associates are reported as interested in establishment of a plant for manufacturing hosiery and are getting estimates on machinery, etc.

Personals.

John A. Mitchell has been elected president of the Hamburger Cotton Mills, Columbus, Ga. He formerly held the position of vice president. He succeeds the late Major Louis Hamburger.

J. T. Moreland has accepted a position as superintendent of the Aurora Cotton Mills, Burlington, N. C. He was formerly superintendent of the Saxon Mills, Spartanburg S. C.

Wiley Cargille, overseer of carding for the Union Springs Cotton Mills, Union Springs, Ala., has severed his connection with that company after four years of service.

C. F. Pliegel has accepted a position as overseer of carding and spinning at the McGee Manufacturing Company, Greenville, S. C. He was formerly employed at Fredericksburg, O.

W. R. Ennis has returned to Cedartown, Ga., and taken the position as overseer of spinning, which he formerly held. He has recently been employed at the Gluck Mills, Anderson, S. C.

R. Nuttall has accepted a position as overseer of carding and spinning at the Chinabee Mills, Talladaga, Ala., succeeding J. P. Wood who resigned.

J. C. Fowler has accepted a position as master mechanic at the Hillsboro Cotton Mills, Hillsboro, Texas. He was formerly employed at the Premier Cotton Mills, Barton, Ark.

James J. Quinn, 246 Chestnut St., Philadelphia, Pa., agent for mill supplies, has taken in connection with his other business, the agency of the Georgia Spool and Bobbin Company, of Macon, Ga.

James H. Fraser, who recently accepted a position at the Adams Woolen Company, Adams, Mass., has been promoted to the position of superintendent of this firm He formerly worked at Gilbertville and Ware, Mass.

C. K. Taylor has been appointed secretary and treasurer for the Kosciusko Cotton Mills, Kosciusko, Miss. He was formerly overseer of spinning at the Brookside Mills, Knoxville, Tenn.

Frank Hamilton has accepted a position as superintendent of the Watts Mills, Laurens, S. C. He was formerly employed as superintendent of the Darlington Cotton Mills, Darlington, S. C.

T. H. Cromer has accepted a position as overseer of spinning for the Payne Mills, Macon, Ga. He was formerly employed at Piedmont, S. C.

J. H. Perkins has accepted a position as master mechanic at the Premier Cotton Mills, Barton, Ark. He was formerly employed at Dalton, Ga.

J. Fairchild Graham has accepted a position as loom fixer for the Cleveland Worsted Mills Company, Cleveland, Ohio. He was formerly employed at the Assabet Mills, Maynard, Mass.

V. M. Johnson has severed his connection with the Massachusetts Mills, Linsdale, Ga. He held the position of overseer of weaving.

Adolph Pero has accepted a position as overseer of weaving for the Manchester Woolen Company, Manchester, Montana. He was formerly employed at Philadelphia, Pa.

Joseph Sandiford, formerly employed at the Windsor Print Works, has re-entered the employ of this company. Being an expert hand engraver, indications are that more work than ever will be done at the above plant.

Phillip Y. DeNormandie has resigned the treasurership of the Pepperell Mills, Biddeford, Me., and has associated himself with Bliss, Fabyan & Company as a partner. They are selling agents for the Pepperell Mills. William Amory succeeds Mr. DeNormandie as treasurer of the mills.

Leo J. Koski has accepted a position as dyer at

Flint, Mich. He was formerly employed at South Bend, Ind.

John B. Feenstra has accepted a position as boss finisher at Somerville, Conn. He was formerly employed in a similar capacity at the Scotia Worsted Mills, Woonsocket, R. I.

Walter S. Magee has accepted a position with the Aiken Manufacturing Company of Bath, S. C., as master mechanic.

James Berth, overseer of carding at the Westerly Woolen Company, Westerly, R. I., met with a severe accident recently. While reaching for a piece of waste which had caught in one of the set screws on a carding machine, his hand became entangled in the waste and his arm was drawn tight to the shafting, so that the set screw tore the flesh badly. He had the presence of mind to throw off the belt and stop the machine, thus saving himself from serious injury. He has held the position as overseer of carding for a number of years.

Leverett L. Remington, foreman of the spinning department at the Whitin Machine Works, has retired after 29 years in the service of that company. Mr. Remington was born in a part of Uxbridge that is now known as Northbridge, and lived about all his life in Whitinsville. Mr. Remington was presented a beautiful gold lined solid silver loving cup from his shopmates.

Desire Metiot, overseer of twisting and warping at J. R. Montgomery Company's mill at Windsor Locks, Conn., was married June 26th to Mary J. Byrne. They will take up their home at Windsor Locks.

Hugh Sheridan, proprietor of the Sheridan Woolen Mills, Ashuelot, N. H., sailed from Boston on June 29th, for several weeks' stay in Scotland. He will also visit Ireland before his return.

George R. Cult, overseer of dyeing at the Holston Manufacturing Company, Lenoir City, Tenn., has severed his connection with that company, and is now fitting up an up-to-date dye house with improved machinery, for the Austin Knitting Company, South Bethlehem, Pa.

Edward Lake has severed his connection with the Palisade Silk Company and accepted a position as assistant superintendent of the Pine Tree Silk Mills, Philadelphia, Pa.

George Phelps has accepted a position as boss warper with Demorest Brothers, Paterson, N. J.

William F. Ambach, formerly employed at the Shackamaxon Worsted Company of Philadelphia, Pa., is to take charge of the finishing department of the Nasonville Woolen Company, Nasonville, R. I.

John Quinn has resigned his position as overseer of the weaving department at the Nasonville Woolen Mill, Nasonville, R. I., and will accept a similar position in a large new mill at Stafford Springs, Conn. He was presented with a roll top desk, fountain pen and inkstand by the employes of the weave room.

Thomas Bolderson has resigned his position as foreman of the Grey Room at the Apponaug Company, Providence, R. I.

B. L. Harney has accepted the position as overseer of weaving for the Bound Brook Woolen Company, Bound Brook, N. J. He was formerly employed at Somerville, N. J.

Thomas E. Wye has resigned his position at the Swansdown Knitting Company, Hudson, N. Y., and returned to his home at Highlandville, Mass.

Otto Shragge has accepted the position as designer at the Oella Mills, Oella, Md.

Henry Brown has resigned his position as overseer of spinning with the Thomas Henry Company, Philadelphia, Pa., and accepted a similar position with the Ontario Spinning Mill of the same city.

Thomas Judd has accepted a position as overseer of dressing for the Premier Worsted Mills, Wickford, R. I. He was formerly employed at the Dunn Worsted Company, Woonsocket, R. I.

Thomas Donovan has accepted a position as overseer of spinning for the Harmony Knitting Company, Waterford, N. Y. He was formerly employed at Bennington, Vt.

Joseph B. Charlesworth has accepted a position as overseer of carding and spinning for the Atlas Linen Company, Meredith, N. H.

O. K. Wilson has resigned the position as overseer of weaving at the Darlington Manufacturing Company, where he has been employed for some time, and has accepted the position as superintendent of the Orangeburg Manufacturing Company, Orangeburg, S. C. He was presented with an elegant Masonic ring by the employes at the Darlington Manufacturing Company.

L. M. Chance has accepted the position as assistant superintendent of the Milfort Mill Company, Fort Mill, S. C., succeeding L. A. Hughes. He was formerly employed at the Fort Mill Manufacturing Company of that place as overseer of carding.

Will Burton has accepted the position as overseer of weaving at the Milfort Mill, Fort Mill, S. C. He was formerly employed at the Victoria Mills, Rock Hill, S. C.

G. J. Wall has accepted the position as overseer of weaving at the Riverside Mills, Danville, Va.

D. M. Lasley has accepted the position as superintendent of the Spray Cotton Mills, Spray, N. C. He was formerly overseer of carding and spinning at the Aurora Cotton Mills, Burlington, N. C.

F. Y. Cautrell has accepted a position as overseer of weaving at the Glenwood Mill, Easley, S. C., succeeding J. J. Nelson. He was formerly employed at the Franklin Mill, Greer, S. C.

E. T. Barnes has accepted the position as overseer of spinning for the Lynchburg Cotton Mills, Lynchburg, Va. He was formerly employed with the Siluria Cotton Mills, Siluria, Ala.

T. C. Wilson has accepted the position as assistant superintendent of the Hoskins Mill, Charlotte, N. C. He was formerly overseer of spinning at that mill.

J. W. McKinney has accepted the position as overseer of the cloth room at the Hoskins Mill, Charlotte, N. C. He was formerly employed at Henrietta, N. C.

H. Lee Dearman has accepted a position as overseer of carding at the Aurora Mills, Burlington, N. C. He was formerly overseer of carding at the Morehead Mills, Spray, N. C.

P. E. Davis, formerly of Warren, Mass., has accepted a position as overseer of weaving for the Assawaga Mills, Dayville, Conn.

W. E. Easton has accepted a position as designer for the Globe Woolen Company, Utica, N. Y. He was formerly employed at the Cambridge mill of the American Woolen Company. He was presented with a traveling bag by the officials of the company.

H. F. Tebeau, boss carder for Gay Brothers, Cavendish, Vt., has resigned and returned to his home in Oxford, Mass.

Thomas E. Smith has accepted a position as overseer of weaving for the Knoxville Woolen Mills, Knoxville, Tenn. He was formerly employed at Laporte, Ind.

Harry Pilkington, a former resident of Lowell, Mass., is president of a company recently formed at Mt. Holly, N. J., under the name of the Roye & Pilkington Company. They have a capital stock of $100 000, and will manufacture upholstery goods, etc. At present they have 60 looms.

Fred Swan has resigned his position as overseer of the art square department of the Bigelow Carpet Company, Lowell, Mass., and will accept a position in charge of finishing and shipping at the Whitehall Manufacturing Company, Palmer, Mass. Mr. Swan was presented with a suit case by the employes under him.

Robert Dodds, formerly overseer of weaving at Peru, Ind., has resigned. He is to become superintendent of a mill at Columbiaville, Mich. Earnest Hill succeeds him as boss weaver at Peru.

J. Murphy, formerly of Kensington, Pa., has been engaged to take charge of the card room at the Crane Felt Company, Bervidere, N. Y.

James Clabby has resigned his position as overseer of the finishing room of the Saranac Mills, Blackstone, Mass. He is succeeded by John Lyons, formerly of Dover, N. H.

J. H. Perkins has accepted the position as master mechanic for the Premier Cotton Mills, Barton, Ark. He was formerly employed at Dalton, Ga.

Wiley Cargill, overseer of carding for the Union Springs Cotton Mills, Union Springs, Ala., for the past four years, has resigned.

J. C. Fowler has resigned his position as master mechanic for the Premier Cotton Mills, Barton, Ark., and will accept a similar position with the Hillsboro Cotton Mills, Hillsboro, Texas.

Lawrence Corcoran has accepted the position as overseer of dyeing at the Franklin Glazier & Sons Mill, South Glastonbury, Conn., succeeding George Newrey.

Samuel Douglas has resigned his position as boss spinner at the Talcott Mill, Talcottvile, Conn., and accepted a position at South Manchester, Conn.

Henry Paul has accepted a position as boss spinner at the Talcott Mill, Talcottville, Conn. He was formerly employed at the Assabet Mill, Maynard, Mass.

Joseph Beddows, for a number of years overseer of the finishing department of the Manchester Mills, Manchester, N. H., died in that city of Bright's disease and heart trouble on July 17, at his late home, 343 Manchester St. He had worked in the mills for fifty-two years. He was born August 12, 1837, in Bolton, England, and after coming to this country worked about a year in the Pacific Mills, Lawrence, Mass. He is survived by two sons and one daughter, also one brother and one sister.

George C. Dexter, formerly overseer of spinning at the Pemberton Mills, Lawrence, Mass., is now general overseer of the entire spinning department of the Dartmouth Mills, New Bedford, Mass.

James McNulty has accepted a position as second hand in the carding department of the Bristol Manufacturing Company, Bristol, Conn. He was formerly employed at Dracut, Mass.

Fred Crooke has accepted a position as overseer of weaving at the Nasonville Woolen Mills, Nasonville, R. I.

James Park has accepted a position as overseer of spinning and carding for the Phoenix Woolen Company, Stafford, Conn He was formerly employed at New Bedford, Mass.

Charles M. Cook is at the head of a company who propose to build a cotton mill at Brevard, N. C. He was formerly superintendent of the Southern Mill, Bessemer, N. C.

Forrest C. Batterson, for the past 13 years engaged in the woolen business at Huntington, Mass., having sold his holdings in the Massasoit Woolen Company, of which concern he was president up to a few months ago, has gone to Passaic, N. J., where he will engage in the woolen business.

Maurice A. Moriarty, for many years foreman of the spinning department at the Cheney Brothers' plant, South Manchester, Conn., has been retired on a pension.

Albert Ainley has accepted a position as overseer of weaving, dressing, etc., for the McGee Manufacturing Company, Greenville, S. C. He was formerly employed at Providence, R. I.

R. A. Bothwell has accepted a position as overseer of dressing at the Globe Woolen Company's Mill, Utica, N. Y. He was formerly employed at Worcester, Mass.

D. A. Provost has accepted a position as overseer of dyeing for the Columbiaville Woolen Mills, Columbiaville, Mich. He was formerly employed at Woonsocket, R. I.

James Bolderson, foreman of the Grey Room at the Apponaug Print Works, Apponaug, R. I., has resigned.

Wm. W. Hanks, who has been connected with the Oregon City Manufacturing Company, Oregon City, Ore., for the past six years as superintend-

ent, has resigned to accept the position as superintendent for the Hanover Woolen Manufacturing Company, Hanover, Ill.

Herman Haesler has accepted the position as boss dyer for the Holston Manufacturing Company, Lenoir City, Tenn.

J. W. Dickinson, formerly second hand of carding at the Hanover Woolen Manufacturing Company, Hanover, Ill., has been promoted to the position as overseer of that department.

John Sheehan has resigned his position as overseer of weaving at the Saugus Manufacturing Company, Saugus, Mass.

Adelbert Nichols has succeeded Kenneth Merrill as superintendent of the Monadnock Mills, Claremont, N. H. He formerly had charge of the bed spread department at that mill.

George Malonzo has resigned his position as overseer of weaving for the Monadnock Mills, Claremont, N. H., and has returned to Manchester, N. H., where he was formerly employed.

Herman Guerber has accepted the position as overseer of weaving at the Monadnock Mills, Claremont, N. H. He was formerly employed at Pawtucket, R. I.

F. J. Ward has resigned his position as boss carder for the C. B Alling Company, Derby, Conn.

George C. Eaton, second hand in the card room at the C. B. Alling Company, Derby, Conn., has been promoted to the position as overseer of that department.

Nelson Sabin, formerly of West Eaton, N. Y., has accepted the position as overseer of carding for Newton & Company, Homer, N. Y.

James Woodhouse has resigned his position as boss carder for the Wayside Mills, Troy, N. Y. He will return to Andover, Mass., where he will take charge of the carding department at the Marland Mills, a position he formerly held for some time previous to accepting the position at Troy.

Frank Edgerton has resigned his position as overseer of the weave room at the Central Worsted Company, Central Village, Conn.

George W. Edwards has accepted a position as boss spinner for Brown & Wiggle Co., Kingsville, Ont., Canada. He was formerly employed at Markham, Ont.

James Ashe has accepted the position as overseer of carding for the Humboldt Bay Woolen Company, Eureka, Cal. He was formerly employed at Portland, Ore.

S. S. Welch, superintendent of the Oella Mills, Oella, Md., has tendered his resignation.

R. Fazackerly, superintendent of the Cornwall & York Cotton Mills Company, St. John, New Brunswick, has resigned.

R. E. Walsh has resigned his position as overseer of dyeing for M. H. Marcus & Brother, East Killingly, Conn.

Milton O. Dean has accepted the position as designer for the Dwight Manufacturing Company, Chicopee, Mass. He was formerly employed at Fairhaven, Mass.

W. H. Cotton has resigned his position as overseer of weaving for the Bristol Manufacturing Co., New Bedford, Mass.

John R. Ecob, who is now in charge of the dyeing and finishing departments of the Collingwood Mills, Philadelphia, Pa., was formerly in charge of those departments at the Arlington Mills, Lawrence, Mass.

George W. Shepard, overseer of frame spinning at the Wauregan Co., Wauregan, Conn., for over 41 years, will resign August 13th. Edward J. Farrell will succeed him.

R. C. Bailey, formerly with the Granite Woolen Co., Swanzey, N. H., has accepted a position as dry finisher for the Merrimack Woolen Co., Lowell, Mass.

T. D. Douglass has resigned his position as boss weaver for the Assawaga Woolen Co., Dayville, Conn.

Fred Thornton has been engaged as electrician for the new dye house and spinning plant at the Arlington Mills, Lawrence, Mass. He was formerly employed at Bradford, England.

Andrew Johnson has accepted a position as designer for the Merrimack Woolen Mills, Lowell, Mass. He was formerly employed as loom fixer for the Soule Mills, New Bedford, Mass.

Joe Midgley has resigned his position as boss carder for the Shenandoah Mills, Utica, N. Y., and returned to Ashton, R. I.

W. J. Martin has accepted the position as boss finisher for the Ashland Manufacturing Co., Dickeyville, Md. He was formerly employed at West Eaton, N. Y.

Albert T. Johnson, formerly overseer of finishing the Broad Brook Co., Broad Brook, Conn., has accepted the position as overseer of finishing for the Sawyer Mills, Dover, N. H.

J. A. Code has resigned his position as overseer of carding at the No. 4 mill, West Warren, Mass., and returned to Appleton, Ont.

Elias Hall has been engaged as manager for J. Turner & Co., manufacturers of hair cloth, Philadelphia, Pa. He was formerly employed at Niagara Falls.

M. S. Dixon has resigned his position as superintendent of the Ashland Manufacturing Co., Dickeyville, Md.

Wm. K. Litch is to resign as superintendent of the C. A. Root Co.'s woolen mill at Wheelocksville, Mass., to take effect Aug. 3d. He will accept a similar position with the Glen Woolen Co., Pascoag, R. I.

William Wilkinson has resigned his position as designer for the Wauregan Co., Wauregan, Conn., where he has been engaged for the past 2 1/2 years, and has accepted the position as boss weaver for the Bristol Manufacturing Co., New Bedford, Mass.

Charles Green, designer at the Nantucket Mills, Spray, N. C., died July 10th. Interment was at Woburn, Mass. He is survived by a widow, three daughters and one son.

Ralph Abbott has accepted the position as second hand in the weave room for the Edward T. Steele Company, Bristol, Pa. He was formerly employed at Maynard, Mass.

John Murphy has accepted a position as loom fixer for the Edward T. Steele Company, Bristol, Pa. He was formerly employed at Philadelphia, Pa.

L. Foss has resigned the position as second hand of dry finishing for the Madison Woolen Company, Madison, Me.

John Savage has accepted a position at the Hebron Mills, Hebronville, Mass., as second hand in the card room. He was formerly employed at Pawtucket, R. I.

Antonio Orcurto has accepted a position as loom fixer for the Susquehanna Silk Mills, Sunbury, Pa. He was formerly employed at Paterson, N. J.

Samuel Davison, agent of the Hamlet Textile Mills, Woonsocket, R. I., gave a clam-bake and outing to the employes of the mill Saturday, July 6th, at the Hamlet Grove.

James McGill of North Billerica, Mass., has accepted the position as second hand in the dry finishing room at the Madison Woolen Mills, Madison, Me.

DEATHS.

James W. Heery of Lowell, Mass., who was widely known as a woolen manufacturer, having been connected some years ago with his brother, L. M. Heery, in the manufacture of woolen goods, under the firm name of Heery Brothers, died in that city of paralysis.

Michael Drury, long identified with the manufacturing interests in the vicinity of Woonsocket, died from heart failure at his home, 284 Pine St., Providence, R. I. He had been overseer in a number of woolen mills in that state, and also in Massachusetts.

William Bault, of the late firm of Greenwood & Bault, dyers and bleachers, died at his home in Frankfort after a long illness, at the age of seventy-nine. Mr. Bault was born in Philadelphia and began his business career in the mill district of Frankfort. Forty-three years ago he formed a partnership with Richard Greenwood and was actively engaged in business until May, 1906, when ill-health forced him to give up. The business has recently been incorporated as the Globe Dye Works Company. Mr. Bault was a leading member of the Frankfort Presbyterian Church and director in a number of financial and business corporations. His wife and son survive him.

Christopher Horandt, vice president and superintendent of Corbett Brothers Silk Company, Paterson, N. J., was instantly killed while driving his automobile at Keyport, N. J. In attempting to cross at grade at an unguarded crossing, an express train struck his machine, tossing him twenty feet in the air. Mr. Horandt was born in Switzerland October 26, 1860, and at an early age came to America with his father. He had been prominently identified with the silk business all his life, learning all branches, and rising to a high position through merit.

E. Rice, a manufacturer of elastic stockings, knee caps, surgical hosiery, died at his home in St. Paul, Minn., June 27th.

W. N. Brown, of Emporia, Va., superintendent of the Ashby Mill, No. 2, of that place, died suddenly on June 17th of paralysis. Mr. Brown came to Emporia from Marion, S. C. He is survived by a wife and two children.

Edward D. Thayer of Worcester, Mass., died on July 17. He had planned to spend the summer in Europe but was stricken with appendicitis and obliged to undergo an operation which resulted in his death. He was about fifty years old, and was one of the successful woolen manufacturers of the country. His interests in the past few years had expanded very largely. On the completion of his education he went into the woolen manufacturing business, in which his father was interested before him. At the time of his death he operated the Worcester Woolen Mills, as well as another woolen mill in the suburbs of that city, the Merchants Mill and the Merchants Dye Works at Dedham, Mass. Several years ago he was instrumental in establishing the Crompton-Thayer Loom Co., since merged with the Crompton & Knowles Loom Works.

Robert Dawson of South Framingham, Mass., died at his home on Elm St. in that city on July 15th of heart trouble. He was well known in New England as a woolen manufacturer, having been superintendent and agent of the Saxonville Woolen Mills, Saxonville, Mass., for 25 years.

Tamar Umpleby died in Lowell July 9, 1907. Mr. Umpleby was born in Helmsly-Blackimoor, Yorkshire, England, March 27, 1826.

Hiram Hodgdon, general manager of the Ashland Knitting Mills, died in that town on July 13. When 21 years of age he went to Boston and was employed as a dry goods clerk. After serving in that capacity for one year, he came to Ashland and took charge of the store owned by Mr. Follansby. Later he went West and became interested in real estate, and was quite successful in this line. Mr. Hodgdon served two years in the 12th New Hampshire Volunteers in the late Rebellion. He is survived by a widow, a brother and a sister.

Francis Conkling Huyck, a woolen manufacturer of Albany, N. Y. died in that city on July 4th at the age of 68 years.

Varnum C. Cooper, formerly a resident of Watertown, Mass., died at the home of his son in Yonkers, N. Y., on Wednesday, July 17th. He had been in the wool business for 25 years in New York City, the latter part of which he was a member of one of the largest woolen firms in the city. He is survived by one brother and one son.

Pardon S. Peckham, Jr., president of the Phoenix Spinning Co., Providence, R. I., committed suicide July 23d at his home, 87 Dartmouth Ave., in that city. He was well known as a cotton manufacturer.

Daniel Sharadin, a knitting mill owner and director of the Union Safe Deposit Bank for a number of years, dropped dead from paralysis at his home, Schuylkill Haven, Pa., recently.

John Keating has accepted a position as loom fixer for the Hillsboro Woolen Mills, Hillsboro Bridge, N. H.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

The Official American Textile Directory for 1907; compiled by the Textile World Record; 628 pages, 23 textile maps; office edition price $3.00; travelers' edition $2.00; Lord & Nagle Company, Boston, New York and Philadelphia, publishers.

The thirteenth annual edition of this well-known work has been issued.

The special features of this directory are:

The very complete information which it gives about each establishment, as well as the accuracy of its reports.

The convenient system of arrangement, whereby all textile establishments in any one city or town are grouped together under that place so that it is not necessary to look in half a dozen different parts of the book to see that one has not overlooked any mills.

The copyrighted map features, which enable any town referred to in the text to be quickly located on the map, giving its railroad facilities, distance from other towns, etc.

The yarn trade index, which gives classified lists of manufacturers of different kinds of yarn who spin for the market, tells the size of yarn spun and the way it is put up.

The commission and order section, giving classified lists of establishments doing all sorts of dyeing, bleaching, finishing, mercerizing, etc., on order for converters.

Separate lists of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

In this edition the indexes have been printed on different colored paper from the mill reports, enabling quicker reference to the section desired.

Besides the features mentioned above there are many other separate lists and valuable features which must be seen to be appreciated. The book is ready for prompt delivery. The names of hundreds of new textile establishments are included in this edition which did not appear last year, and thousands of changes, including several hundred firms out of business, make the new book indispensable to those who are doing business with the mills.

The publishers of this directory being also publishers of the Textile World Record are enabled to utilize the extended reporting and news gathering facilities of their organization for the work of the directory, and are thus enabled to compile the statistics in a shorter space of time and with more thorough personal investigation than any other work of this character, bringing the information closer to the date of publication and insuring a high degree of accuracy.

Industrial Statutes (Gewerbe-Ordnung); 160 pages, 4 by 5 1/2; L. Schwarz & Co., Berlin, Germany. Price 50 cents.

This is a concise compilation of the various German laws relating to trades and industries. The text is in German.

Hosiery and Knit Goods Trade; Davison Publishing Company, New York, N. Y.; Office Edition, $3.00; Pocket Edition, $2.00.

The 1907-08 edition of this work has been issued and contains its usual features, comprising a directory of the different knit goods manufacturing establishments in the United States and Canada, classification of manufacturers, etc. Lists of jobbers, retailers and manufacturers' agents also are included. The work bears evidence of its usual careful preparation.

The Blue Book; Davison Publishing Company, 401 Broadway, New York, N. Y.. Office Edition, $4.00; Travelers' Edition, $3.00.

The 1907-08 edition of this publication has been issued in its usual attractive form. A directory of the different textile manufacturing establishments in the United States and Canada is given under various classifications. Auxiliary lines are included combining all the features. A very complete directory has been produced as in former years.

Practical Cotton Calculations, 2d edition; by Ernest Whitworth, Southbridge, Mass.; 131 pages, 4 by 6 1/2; published by the author. Price $1.00.

The second edition of this well known work on cotton calculations has been carefully revised and new matter added. The latter includes chapters on silk calculations, calculations for ginghams, tartans and similar colored fabrics and for fabrics containing more than one size of yarn in warp and filling. The explanations of textile calculations in this work are clear and concise; this explains the popularity of the work which has become a widely used handbook in the trade.

Year Book for Colorists and Dyers; 397 pages, 5 by 7 1/4; H. A. Metz & Co., New York City.

In the ninth volume of this publication the standard tables have been brought up to date and new material has been judiciously selected. The reference tables, which form the first section of the book, are followed by a brief account of the coal tar color jubilee. Then comes a list of new patents relating to the dye trade and an account of new processes and colors brought out during the last year. There is also a valuable list of dyestuffs, giving the maker's name and the method of dyeing. The book closes with extracts from various trade journals.

Practical Hints on Sharpening Cloth Shears (Praktische Winke ueber das Schleifen der Schermaschinenschneidzeuge); by Jacques Pennert, finisher in the Royal School for Textile Industry, at Brunn, Austria. Published by the author.

This is a reprint of an article in the Brunner Monatschrift fuer Textil-Industrie in which the methods of sharpening shears are clearly explained and illustrated by a number of drawings. The text is in German.

Business Literature.

Feed Water Filtration; James Beggs & Co., New York.

A sixteen-page catalogue printed in two colors in which is described and illustrated the Blackburn-Smith feed water filter and grease extractor built by James Beggs & Co. at 109 Liberty Street. Some very valuable information on the effect of oil on boilers, and the utilization of condensed water from heating systems is also included. A copy of the catalogue will be mailed free on request.

Drying Materials in Industrial Plants. The Green Fuel Economizer Company, Matteawan, N. Y.

This pamphlet takes up the drying of various materials, as fabrics, clothes, malt, lumber, baking powder, paper, paper pulp, sugar, etc. Besides describing and illustrating the fans, blowers, steam coils, etc., manufactured by this company for use in drying plants, an interesting account is given of the philosophy of drying. The text is illustrated by drawings and photographs of drying plants for many different purposes. This pamphlet also describes the Green air heater, which utilizes the waste heat in the flue gases from boiler or other furnaces for heating and drying purposes.

Removal Notice.

The Buffalo Forge Company have changed their Pittsburg office from 1101 Diamond Bank Building to 613 House Building, E. P. Leadbetter, manager.

Electric Drives for Knitting Mills.

Connell, Sykes & Connell, engineers, 90 West Street, New York City, are making a specialty of designing, remodeling and equipping knitting mills, etc., with electric drives. This mode of drive is comparatively new, yet it has been installed in many of the most up-to-date mills and given higher degrees of efficiency and cleanliness.

In equipping a mill with electricity all the operating and local conditions should be carefully investigated. To best satisfy any conditions a proper selection of the various parts that go to make up a symmetrical whole should be made. This is the business of engineers fully conversant with the latest designs of apparatus and possessing the technical knowledge and experience which enable them to decide on the best and most economical design for a plant. Connell, Sykes & Connell are also consulting engineers on power problems. Their aim is minimum cost and maximum operating efficiency. Every owner of a mill should carefully consider these two points before pursuing his construction or remodeling his plant, as thereby he is bound to save money in the end. In many cases where a plant is not operating at maximum efficiency, or where there is not sufficient power for the every-day needs, the advice of such an engineer may place the plant on a better basis, and that with small cost to the owner, and few changes in the outfit.

Cranes and Hoists.

The Northern Engineering Works of Detroit, Michigan, make all types of hand and electric cranes and hoists with overhead trolley and track systems. Textile mills do not need the huge and elaborate systems for lifting and moving material and machinery from one place to another that are used in electrical and steel works. Most mills do, however, need some form of crane or hoist to facilitate handling warps and material in other heavy forms, and for lifting heavy parts of machinery when cleaning or repairing is being done. A great deal of confusion and risk attaches to the performance of this work by a number of men. Every year the realization of this is greater. Some mills which have been using hand cranes and hoists are having them converted into power—generally electric power—cranes and hoists. The Northern Engineering Works are prepared to make the change or to supply any style required. Their catalogue will be sent on request.

Narrow Fabric Specialties.

The F. W. Maurer & Sons Co., of Philadelphia, are among the successful manufacturers of specialties in that centre of manufacturers of special fabrics. Their two mills, located at 528 Cherry St. and at Bristol St. and Germantown Ave., respectively, are turning out good qualities of window shade trimmings, rug fringes, tapes, bindings, narrow fabrics and lace edgings in cotton, wool and silk. The greatest care is bestowed on every order and attention is given to prompt deliveries.

Saving Exhaust Steam Under Difficulties.

This is the title of an attractive circular issued by the engineering department of the Harrison Safety Boiler Works, Philadelphia. It tells a remarkable story of achievement in steam economy, showing how the steel industry has been revolutionized in this respect.

The Harrison Safety Boiler Works employ skilled engineers to study conditions and adapt apparatus to particular and individual requirements, and has accomplished remarkable results in many instances.

Mechanical draft for boilers is being installed by the B. F. Sturtevant Company of Boston, Mass., for Kitson Machine Shops, Inc., Lowell, Mass.; R. B. Whitacre & Co., St. Paul, Minn.; State Hospital, Morganton, N. C.; Bemis & Call, Springfield, Mass.; General Chemical Co., Dundee, N. J.; General Chemical Co., Laurel Hill, L. I.; Lovegrove & Co., Inc., Philadelphia, Pa., and International Paper Co., Otis Mill, Chisholm, Me.

The Northern Engineering Works, Detroit, Mich., installed in the new plant of the Great Northern Paper Co., East Millinocket, Me., a complete plant of overhead trolleys and hoists of 4, 6 and 8 tons capacity; also a number of type No. 20 air hoists of 1 to 3 tons capacity.

Cotton Dealers and Importers.

The John A. Walker Co. have been organized to deal in all grades of imported and American cotton, their specialty being Egyptian. Mr. Walker, the president of the company, is well known to the cotton trade, having made a specialty of Egyptian cotton for twenty-five years, and for the past nine years he was associated with the C. E. Riley Co. The treasurer of the new company is Wilton H. Spencer. The Boston office is at 88 Broad St., cor. Franklin; the Providence office is at 7 Exchange Pl.

In addition to Egyptian they propose to deal in Sea Island, Peruvian, West Indian, East Indian and American.

Purifying Water.

The large number of orders received by Wm. B. Scaife & Sons Co., Pittsburg, Pa., for water softening and purifying systems is evidence of the increased interest being displayed by steam users and manufacturers in overcoming the many expenses and annoyances connected with the use of hard or dirty water. A natural supply of clean, soft water is extremely rare, but the Scaife or We-Fu-Go softening and purifying systems bring such a possibility within reach.

Recent orders have been received from the Andrews Steel Co., Newport, Ky., for a 3,750 h. p. We-Fu-Go system; from the National Home for Disabled Volunteer Soldiers, Dayton, O., for three systems; American Sheet & Tin Plate Co., 5,000 h. p. system; Youngstown Sheet & Tube Co., Youngstown, O., 15,000 h. p. system; Norwalk Iron & Steel Co., Norwalk, O., 1,000 h. p. system; McConway & Torley Co., Pittsburg, Pa., 1,000 h. p. system. Repeat orders have also been received from the New York State Steel Co., Buffalo, N. Y., for a 4,000 h. p. system; from the Rochester & Pittsburg Coal & Iron Co., De Lancey, Pa., 1,500 h. p. system; Pennsylvania Salt Mfg. Co., 5,000 h. p. system.

Shellac Glue.

The Union Casein Co., of Philadelphia, are sending on request samples of powdered and granulated Shlac Lac glue to persons who are interested. The directions for making liquid glue are simply add cold water. No heat is necessary. Colors may be obtained by adding the coloring matter. The purposes for which Shlac Lac glue are adapted cover wood work, leather, metal, glass, and in fact all the uses of the various glues in textile mills, including sizing. The advantages claimed for their product by the Union Casein Co. are that it may be conveniently handled, is colorless, transparent, and waterproof, and combines economy with best results.

The Wood Worsted Mills, Lawrence, Mass., recently placed repeat orders with the B. F. Sturtevant Company of Boston for their new metal-to-metal fuel economizers.

Large Order for Nasmith Combers.

The Clark Thread Co., at Newark, N. J., have been investigating the comber question for the past year and have had different makes of combers under observation at their mill. After a year's trial they have recently placed an order with Stephen C. Lowe of Boston, Mass., agent for John Hetherington & Son, Ltd., for fifty-four 12 1/2-inch lap Nasmith combers with the necessary ribbon lap and sliver lap machines to comb cotton for 65,000 spindles on fine work. This order brings the total number of Nasmith combers ordered or in use in the United States to considerably over five hundred.

John Hetherington & Son, Ltd., have also booked recently an important order in England for thirty Nasmith combers, with the corresponding ribbon lap and comber lap machines, from the important firm of Knowles, Limited, Bolton. This firm is a combination of several separate firms controlling nearly 300,000 spindles, and the order displaces, approximately, about eighty Heilmann combers. Most exhaustive trials of the Nasmith comber were made by the above firm, and will, no doubt, have an important influence in securing further orders from Bolton.

Tinius Olsen Honored by the King of Norway.

Tinius Olsen, manufacturer of testing machinery, at 500 North Twelfth Street, has been the recipient of an unusual honor from King Haakon, of Norway, in the shape of an honorary membership to the Order of St. Olaf.

The honor was made in recognition of Mr. Olsen's many kindnesses to his former sovereign, and because of his successful effort as an engineer in contributing to the fame of Norwegians in the United States.

Softening Oil.

In preparing their "Soluble" softening oil the Arabol Mfg. Co., New York, have endeavored to prevent the tendency to sour in hot weather, and believe they now have a compound that will remain uniform all the year round. It is easy to handle and preferred by many users to tallow and other oils and greases. It gives a smooth finish to the warps; the threads divide well in the lease rods and the cylinders of the slasher remain perfectly clean. Being neutral, it is most suitable for closely woven goods, such as corduroys, velveteens, sateens, twills, umbrella cloths, cambric, etc.

Record Business.

The Westinghouse Electric Works at East Pittsburg during the month of May shipped no less than 750 carloads of electrical machinery, or an average of 30 carloads a day, aggregating 10,000 tons and representing in value about $4,000,000. This exceeds by 110 cars any shipping record for one month that has ever been made at these works.

A Busy Concern.

The Oswald Lever Co., Lehigh Ave. and Mascher St., Philadelphia, have developed a large trade on their silk winder for winding cops on paper tubes.

They are very busy in all the departments. During one week recently they shipped a sixty-spindle butt winding machine for plush to Larthroes, Laurent & Sons, Tourcoing, France; a cop winder and spooling machine to Brinton Carpet Co., Peterborough, Canada; a hosiery winder to Tacoma, Washington, for the Montana Knitting Mills; a cop winding machine for The Kilmarnock Textile Mfg. Co., Adams and Emerald Sts., Philadelphia, and a spooling machine for the Lehigh Lace Co., Lehighton, Pa.

Narrow Fabric Loom.

Last year while abroad, William Fehr, manager of the Steel Heddle Mfg. Co., 2110 Allegheny Ave., Philadelphia, was invited to accept the agency in the United States of the narrow fabric loom built by Hattersley & Sons, Ltd., Keighley, England. There is now one of these looms on exhibition at their mill and manufacturers interested are invited to call. Those who have seen it have expressed themselves as much pleased with its features. If there is sufficient demand for it they will build the loom in this country.

The Steel Heddle Mfg. Co. in New Mill.

The Steel Heddle Mfg. Co., 2110 Allegheny Ave., Philadelphia, have recently purchased the large and commodious mill at that address. They vacated the old mill at 1842 Germantown Ave. about the first of July.

The new building is of brick, 100 by 245. The front of the building is two stories high, and the contracts have been let to make it four stories. When everything is completed it will be one of the best equipped shops of its kind.

The business has been very prosperous, the last month being the largest since the company started. Their heddles go to all parts of the world. They have an especially large trade in England. Wm. Fehr is the manager of the plant.

Removal.

After July 15 the Philadelphia office of Stoddard, Haserick, Richards & Co. will be found in The Arcade, 15th and Market Sts. This office building is practically a part of the Broad St. station and can be reached without leaving the train floor. H. W. Nelson is the Philadelphia representative.

Among the many orders received by the Westinghouse people since the first of June is one for 59 motors for driving textile looms at East Hampton, Mass., and a larger number for running spindles in a worsted mill at Passaic, N. J.

Boiler Scale.

The principal scale forming substances in feedwater are carbonate of lime, sulphate of lime or gypsum and magnesia. These are soluble in cold water and in water of moderately high temperature, but become insoluble at a temperature of 303°, which corresponds to an absolute steam pressure of 70 pounds.

Scale forming substances are precipitated by heating and evaporating the water. Part of the precipitation is deposited as mud, and part settles on the hot plates, tubes, crown sheets, side sheets, or any place in the boiler where these mineral substances may get in contact with the iron, and form scale. Scale is very objectionable in a boiler, because it seriously detracts from the heat transmitting power of the metal.

In boilers that have a 1/16 inch scale, the efficiency is decreased 30 per cent., thus requiring about 15 per cent. more fuel to get the required evaporation. Scale keeps the water from coming in contact with the plates, causing them to become overheated, which greatly shortens the life of a boiler.

The question that naturally confronts the steam user is, how can this scale be removed and its formation prevented at a minimum cost, without injury to the boiler or loss of time?

A compound that will remove scale that is already formed, must go to the root of the evil. It must act on the iron in such a manner as to remove the scale, and once removed keep it so. This is the object of "Magic" boiler compound now being offered for sale by the H. W. Johns-Manville Co. The manufacturers state that when introduced into the boiler it seeks the iron, and working its way between the scale and iron, causes the scale to loosen and fall off.

"Magic" boiler compound is adapted to every climate and locality and no analysis of water is required in order to secure the best results. The H. W. Johns-Manville Co. is issuing an interesting folder entitled "How to Clean a Boiler," which gives information on this subject.

Water Wheel Governors.

The National Water Wheel Governor Co., of Akron, Ohio, are turning out a governor for water wheels on which they guarantee results. The usual trouble with water wheel governors is their inability to open or shut the gate quickly enough to prevent the wheel from "running away," or the speed from falling too low every time a load is thrown off or on. In using some of the old water wheels, which were not run in connection with an engine and the speed governed by the governor of the engine, the load was sometimes more uniform than the speed. The National Water Wheel Governor Co. will be glad to talk governors with all who are interested.

The Wilkesbarre Lace Mfg. Co., Wilkesbarre, Pa., have adopted the American Moistening Company's system of air moistening.

Change of Name.

The Acme Flexible Clasp Company on July 2, 1907, changed its name to the Acme Steel Goods Company. There is no change in management or location, 2834-2840 Archer Ave., Chicago. This business was established twenty-seven years ago to manufacture Acme flexible clasps and other specialties, but the line has been extended until the old name became misleading. By deserving it, the company hope to continue to expand for the next twenty-seven years and more.

Dyeing and Bleaching for the Western Trade.

The Western Thread & Dye Works of Chicago have exceptional facilities for handling the western dyeing and bleaching trade. Their equipment in machinery and men is of the best and the natural advantages of their location reduce the delays and freight charges incident to having work done at a greater distance. They dye cotton, mercerized woolen and worsted yarns, and bleach cotton and mercerized yarns. Cone winding also is done when it is desired. This firm state that they live by dyeing. There is every indication that they are a live firm.

Dyeing in Manchuria.

It is well known that the millions of Chinese living in the northern sections of China are clothed in American sheetings and drills. It is also well known that they wear no white outer garments, unless in mourning, and that nearly everything is dyed some shade of blue.

Most of the Chinese dyehouses are small affairs. The clay pots in which the cloth is dyed are termed "kangs," and are about 5 feet high, tapering from about 30 inches diameter at the top to about 12 inches diameter at the bottom, and holding probably 100 gallons. This is the usual size, though many different sizes and shapes are used. These are arranged around the sides of the room in mud embankments about 30 inches high, the rest of the "kang" being down in the ground. The blues are all dyed with indigo. To dye, the "kang" is first filled with water and this heated to boiling. Then indigo dye and natural soda are stirred in, and then lime added until the color is to the dyer's satisfaction—a yellowish, streaked-blue color. This is kept boiling for twelve hours, then the bolt of American sheeting is brought forward and pushed in with a stick, fold by fold. This is kept in for, say, half an hour and then taken out and hung on a high bamboo framework to dry in the wind or, as is often done, is spread out along any convenient place, such as the city wall, and where it is exposed to all the dust kicked up by passing teams. For some colors this is then put back and dyed again and then dried again. For some shades this is done three times. In bringing the cloth out of the bath it is pulled through holes in a small board to remove the surplus dye and water.—Consular Report from Manchuria.

British Cotton Growing.

The second annual report of the British Cotton Growing Association, recently issued, says:

"In the West Indies cotton growing is established on a sound commercial basis, and the production this year is estimated at $500,000 in value; in West Africa nearly 10,000 bales have been produced this season, and the industry in Lagos is already a commercial success. In East Africa appreciable quantities of excellent cotton are being produced. The production of cotton grown under the auspices of this association during 1906 is estimated at 20,000 bales, worth $1,300,000, whereas four years ago cotton growing as an exporting industry was almost non-existent in the colonies where the association has achieved these results. The council is strongly of the opinion that a turning point has now been reached. If, however, the industry is to be made an absolute success it will require fostering for many years. Permanency can only be secured by the provision of ample capital. The council must confess to a feeling of some disappointment that the cotton trade has not more readily recognized in a practical way the necessity of supporting the work by subscribing the required capital. The question of raising the money is giving the council much trouble and anxiety."

Preparing English Wool for Market.

The wool trade seems disposed to put off the garment of meekness, and to don armor against "the slings and arrows of outrageous fortune." The campaign was opened recently at Bradford, where a Home Buyers' Association, with a membership of merchants, spinners, and manufacturers, has lately been formed. A principal object of the meeting was to compel reform in the manners and customs of English farmers as regards their preparation and marketing of the wool clip. England, it was said, is one of the worst countries in the world in this respect. Farmers do nothing to keep down black sheep; indeed they have some ridiculous superstition that it is good luck to have black sheep pottering about. They revel, too, in the pernicious practice of marking their sheep late in the season with tar and paint, with a consequent loss to Bradford and district in this way of some £7,000 or £8,000 a year.

Mr. Francis Willey, who presided, referred also to oppressive rates for storage. These, he said, were being raised to a point much in excess of what traders could build warehouses for and obtain 6 per cent. on their investment, and the time had arrived when they should consider measures to combat these oppressive charges. Our railway rates were higher than those of any other country in Europe, and certainly higher than in America. It was agreed that steps should be taken to secure closer co-operation on these subjects among growers, dealers, and consumers.

Textile Mercury.

The Amoskeag Mfg. Co., Manchester, N. H., have placed a large repeat order for humidifiers with the American Moistening Company, Boston, Mass.

Wages in Spinning Mills.

Discussing the wages paid by cotton yarn mills, a correspondent of the Manchester Guardian gives the following figures for a ring frame and a mule spinning mill:

The following are (weekly) payments made at a ring spinning mill of 50,000 spindles:

Mixing	$12.15
Blowing	13.12
Carding	31.34
Drawing	31.59
Slubbing	25.76
Intermediate	41.31
Roving	91.56
Spinning	315.90
	$562.73

The weekly wages paid at a mule spinning mill of 43,000 spindles average $555.01. This sum includes payments to those engaged in the processes named in connection with ring-spinning. In addition, about $136.08 is paid in wages to manager, overlooker, carder, bobbin-carriers, roller-coverers, bookkeeper, clerks, packers, mechanic, joiner, and laborers. The total, therefore, is $691.09 for the mule spinning mill.

The cost of labor in mule-spinning is greater than it is in ring-spinning. If, however, an average is taken of the earnings of seventeen classes of operatives in cotton mills—including all processes from mixing to the finished product at the loom—it works out at $5.36 per week. Ring-spinners' wages are averaged at $3.89 per week. Cardroom workers' wages have been averaged at $3.76 per week for women and $5.32 per week for men. If, therefore, the average wage for men (who are very few), women and children in a ring-spinning mill (in the mixing, carding, and spinning processes) be put down at $3.89 per week, the payment for wages in a mill of 100,000 spindles would be $1049.76.

The New York office of the B. F. Sturtevant Company has just been removed from 131 Liberty Street to the new Engineering Building at 114 Liberty Street where much better facilities will be provided for conducting the rapidly increasing business of this well known company. The past year in particular has marked a rapid advance in the installation of Sturtevant generating sets in New York and vicinity, although a corresponding increase has occurred in the line of heating, ventilating, drying and mechanical draft apparatus, in economizers and blowers for a constantly broadening field of usefulness in the industrial arts.

Recent Textile Patents.

BOBBIN HOLDER. 860,690. James Pearson, Central Falls, R. I.

BOBBIN HOLDER. 860,933. Thomas J. Murdock, Franklin, Mass., assignor to Murdock & Geb Co., Franklin, Mass.

BOBBIN AND SPINDLE. Winding. 861,075. Eugene Atwood, Stonington, Conn.

CARDING ENGINE. Traveling Flat. 857,713. William Batten and William Hayes, Auburn, Me., assignors to Batten-Hayes Co., Lewiston, Me.

CARDING MACHINE. 860,154. William D. Rundlett, North Andover, Mass., assignor to Davis & Furber Machine Co., North Andover, Mass.

CLOTH CUTTING Machine. Electric. 858,692. Edward Waring, New York City.

CLOTH STEAMING Apparatus. 858,032. Emil Senkbeil, Pankow, Germany.

DYEING OR PRINTING in Shaded Colors. 860,893. Max Becke, Hoechst-on-the-Main, Germany.

FABRICS. Machine for Rubbing Narrow. 860,833. Henri Simonin, Zurich, Switzerland.

FIBRE CLEANING Apparatus. 859,504. Alpheus W. Montgomery, New York, N. Y.

FIBRE CLEANING Machine. 858,337. Joseph Garcia, Brooklyn, N. Y.

FIBRE CLEANING Machine. 858,338. Joseph Garcia, Brooklyn, N. Y.

FIBRE CLEANING Machine. 859,755. Jose F. Farias, Monterey, Mexico.

LOOM. 860,918. George F. Hutchins, Worcester, Mass., assignor to Crompton & Knowles Loom Works.

LOOMS. Cloth Take-Up Mechanism for. 858,052. Charles H. Atkins, Springfield, Mass.

LOOM DOBBY Mechanism. 859,085. Reynold Kohlhaas, Paterson, N. J.

LOOM FILLING Replenishing Mechanism. 861,185. Belonie Janelle, Manchester, N. H.

LOOM HARNESS Hook. 859,189. Isaac Andrews, Spartanburg, S. C.

LOOM HARNESS Motion. 858,136. Charles H. Atkins, Springfield, Mass.

LOOM JACQUARD. 858,035. Samuel Smith, Toronto, Canada.

LOOMS. Lever Moving Mechanism for. 860,715. William M. Wattie, Worcester, Mass., assignor to Crompton Thayer Loom Co., Worcester, Mass.

LOOM PICKER Check. 859,554. Millard F. Field, Winthrop, Mass.

LOOM PICKER Check. 861,013. William H. Ayer, Claremont, N. H.

LOOM PICKER Motion. 860,462. Henry Griffin, Kenyon, R. I.

LOOM. Pile Fabric. 858,961. James K. Dalkranian, New York City, assignor to United States Persian Carpet Co., New York City.

LOOM SHUTTLE. 859,991. Cornelius J. Sullivan, Fall Fiver, Mass., assignor of one-half to Herbert H. Marble, Somerset, Mass.

LOOM SHUTTLE Changing Mechanism. 860,567. Charles F. Perham, Lowell, Mass.

LOOM SHUTTLE Check. 860,043. Peter Macpherson, Worcester, Mass., assignor to Crompton & Knowles Loom Works.

LOOM SHUTTLE Motion. 860,863. Harry L. Goodwin, Boston, Mass., assignor to Goodwin Picker Co., Boston, Mass.

LOOM WARP Let-Off Mechanism. 858,138. Charles H. Atkins, Springfield, Mass.

LOOM WARP Stop Motion. 861,217. James K. Lanning, Boston, Mass.

LOOM WARP Stop Motion. 861,190. James K. Lanning, Boston, Mass.

LOOM WARP Stop Motion. 861,191. Charles D. Lanning, Dorchester, Mass.

LOOM WARP Stop Motion. Wire Weaving. 858,139. Charles H. Atkins, Springfield, Mass.

LOOM WEFT or Filling Thread Holding Device. 859,570. Francis A. Mills, Lawrence, Mass.

LOOM WEFT FORK and Slide. 858,151. Frederick D. Chesborough, Fall River, Mass.

This invention has for its object to provide a weft-fork having tines of the usual form which are detachable from the part of the fork which is fastened into the slide and which are also adjustable vertically. This construction enables the tines to be replaced or adjusted without removing the fork from the slide.

Fig. 1

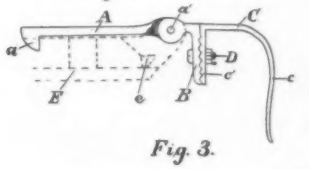


Fig 2

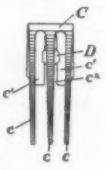
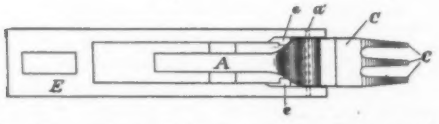


Fig. 3.



Another object of the invention is to provide a weft-fork and slide in which the movement of the fork caused by its contact with the shuttle or shuttle-thread is suitably limited.

Fig. 1 is a side view of the weft-fork showing in dotted lines an inside view of the slide on which the fork is mounted. Fig. 2 shows a front view of the fork. Fig. 3 shows a top view of the fork mounted in the slide.

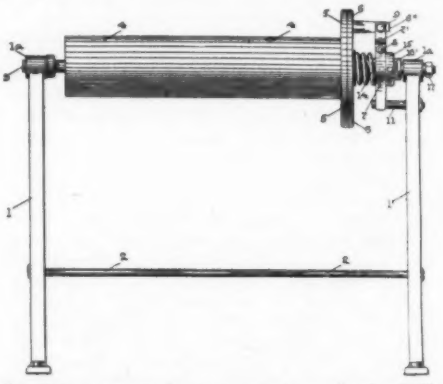
LOOM. Weft Replenishing. 859,541. John W. Carr, Manchester, and Charles R. Scholes, Bury, England.

LOOM. Weft Replenishing. 859,208. Nazaire Demers, Manchester, N. H.

LOOM. Weft Replenishing Mechanism. 860,566. Charles F. Perham, Lowell, Mass.

LOOMS. Warp Beam for. 858,761. Eppa H. Ryon, Worcester, Mass., assignor to Crompton & Knowles Loom Works.

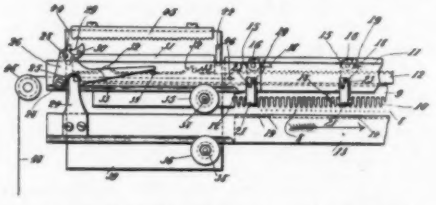
The object of this invention is to provide an improved let off and brake motion for a warp beam, off motion for the warp beam, and also a spring tension or brake motion for the warp beam is obtained, and the warp beam is turned back, when the warp is slackened and false filling has to be cut out, etc.



In the present improvement a single helically coiled spring is used which acts as an expansion spring, and also as a torsional spring. This spring holds the frictional disk of the brake motion in engagement with the disk or head on the warp beam, and also turns it backward when the warp is slackened.

LOOM. Warp Stop Motion for. 858,695. Jakob Wojciechowski, of Warsaw, and Roman Pluzanski, of Stomperkow, Russia.

This invention relates to a device for automatically stopping the loom as soon as a warp-thread is broken. The operation of the device is based on the arrangement that equidistant from one another pendulums are pivotally suspended from a beam, which move with the beam continuously to and fro transversely of and above the warps. On by means of which an easy, even, and smooth let the breaking of a warp thread these pendulums are caused to swing, the swing being produced by the threads being blown into the spaces between the



teeth of a stationary rake or comb. The thread end is pressed on the forward side by means of slip-springs, whereupon the pendulums at their lower ends meet the raised end of the warp thread and are moved out of their vertical position. The swing of the pendulum effects the engagement of pawls connected therewith with the teeth of a transverse rack-bar arranged above the comb or rake, which moves the rack-bar forward. The result of the forward movement of the rack-bar is to throw out of gear the beam to which the pendulums and pawls are secured and to operate a device for stopping the loom by means of a cord and a spring arrangement.

LOOMS. Weft Carrier for Weft Replenishing. 860,703. Melvin L. Stone, Lowell, Mass., assignor to Draper Co.

PILE FABRIC. Woven. 858,923. Edward F. Timme, Spring Valley, N. Y.

SHUTTLE. 858,662. Joseph E. Lemyre, Manchester, N. H.

SHUTTLE. 855,511. Charles C. Howland, Hyde, Eng.

This invention consists of improved means for enabling shuttles to be threaded by hand, these being such that when threaded the shuttle cannot become unthreaded. To this end use is made of a

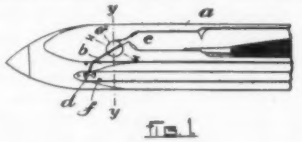


Fig. 1

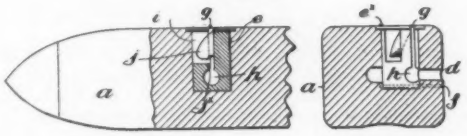


Fig. 2. Fig. 3.

slitted bush let into the shuttle across the usual eye or thread passage, and in this bush is a special form of projection by which the thread on being laid in the thread passage is first deflected out of its course and then allowed to pass into the thread passage. This projection enables the thread readily to pass over and under it and when under it prevents it unduly rising in the slit.

SHUTTLE FOR LOOMS and Bobbin Tensioning Means. 858,137. Charles H. Atkins, Springfield, Mass.

SHUTTLE. Self-Threading. 858,443. Jean B. Daudelin, Fall River, Mass.

This invention relates particularly to the structure of the eye of self-threading shuttles to prevent unthreading by ballooning or otherwise. To overcome this tendency to unthread a new form

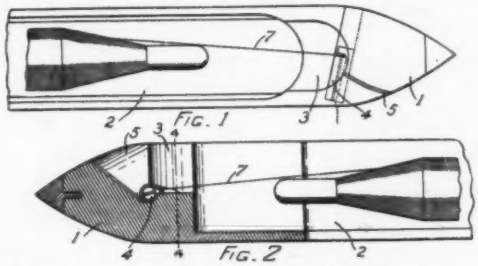


Fig. 1

Fig. 2

of bushing is devised which, together with its relations to the shuttle proper and the threading slots, makes the unthreading of the shuttle impossible. This is accomplished by arranging a slotted bushing in the eye between the passage from the bobbin chamber and its mouth and arranging the slots so that in threading the filling is drawn entirely around this bushing and allowed to rise through the protected slit in the bottom.

SPINNING HEAD. 858,648. Charles A. Ernst, Lansdowne, Pa., assignor to Silas W. Pettit, Philadelphia, Pa.

This invention relates to that class of spinning heads which are utilized for forming filaments of metamorphosed cellulose or similar material in which viscose or a similar material is forced under pressure through a perforated spinneret into a coagulating bath where the viscose filaments are transformed into solid filaments of artificial silk or similar material. Any particles of foreign matter or small clots formed by the decomposition of the viscose would close the minute apertures in the spinneret, thus interfering with the even and uniform flow of the viscose through the same, and unless the material of which the strainer and spinneret are made is chemically resistant to viscose, the viscose will decompose, coagulate or clot and the strainer and spinneret will deteriorate.

The objects of this invention are as follows:

To provide a spinning head containing means for arresting the passage of these impurities, these means being of such material that no chemical transformation will take place by the contact of the viscous fluid with it or with the perforated spinneret.

To make a chemically neutral sipnneret and strainer so thin that the small apertures therethrough may be drilled or punched, and at the same time render them sufficiently strong to withstand the high pressure to which they are subjected.

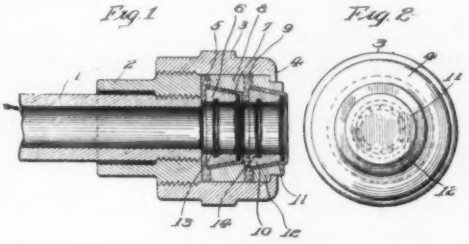


Fig. 1 Fig. 2

To provide a construction in which the expensive platinum spinnerets and strainers may be dispensed with without impairing the quality of the thread produced thereby. This is accomplished by substituting a spinneret and strainer made of hard rubber or other material, which is sufficiently strong to withstand the requisite high pressure and at the same time is chemically neutral or resistant to viscose.

To provide a spinneret of such a configuration that the greater the pressure of the viscous fluid, the more securely the spinneret will be held in position, and also to provide a thin spinneret of such a configuration that when in position it will withstand the pressure of the viscous fluid without being substantially distorted.

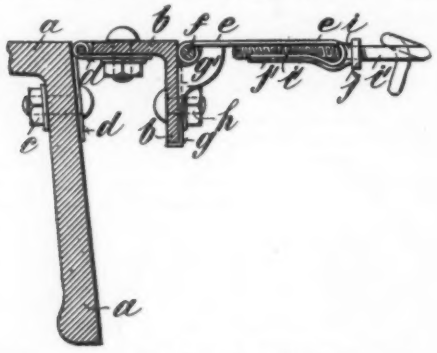
Fig. 1 is a longitudinal section of one of the forms of the invention; Fig. 2, an end view.

SPINNING AND TWISTING Apparatus. 860,448. Robert L. Cumnock, Anderson, S. C.

SPINNING AND TWISTING Frames. Thread Guide for. 859,417. John E. Tytler and William H. Bowker, Manchester, Eng.

This invention relates to improvements in thread guides for spinning, twisting and like frames, the

object being to provide a guide of cheap construction, easy to produce, and capable of ready adjustment. The thread-guide-wire can be adjusted backward and forward in order to centre it over the spindle of the spinning frame, the screw surfaces being adapted to be sufficiently tight to hold the thread guide-wire in proper position while at



the same time allowing the adjusting movement. A lock-nut, j, may be used as indicated for greater security if necessary, and in addition the thread guide holder may have the turned over portion extended, as at j', so as to embrace the thread-guide-wire, i', tightly, by compression. The central curved part of the extension, j', may be formed with screw grooves on its inside surface to engage with the threads of the wire, i'.

THREADS. Manufacture of Silk-Like. 857,640. Rudolf Linkmeyer, Brussels, Belgium.

WARP BEAM for Looms. 858,761. Eppa H. Ryon, Worcester, Mass., assignor to Crompton & Knowles Loom Works.

WOVEN FABRIC. 856,925. William M. Stevenson, Indian Orchard, Mass., assignor to Hodges Fiber Carpet Co., Indian Orchard, Mass.

YARN STEAMING Tray. 858,086. William E. Lyford, Thompsonville, Conn., assignor to the Hartford Carpet Corporation, Thompsonville, Conn.

Textile Trade-Marks Registered.

"Bad Boy." Hosiery. Richmond Hosiery Mills, Rossville, Ga.

"Barstow." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"Beautala." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York, N. Y.

"B. W. U." Knitted Underwear. Geo. Rockwood & Co., Bennington, Vt.

"Colonial." Netted Veilings and Piece Goods. Benedictus, Weill & Co., New York.

"Diamond." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"Fibroline." Yarn from Vegetable Fibre. Griffon Co., Philadelphia, Pa.

"Four in One." Silk Dress Goods. Fried, Mendelson & Co., New York, N. Y.

"Glintola." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Gulliver." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"Heatherbloom." Cotton Piece Goods of Plain Weave. A. G. Hyde & Sons, New York, N. Y.

"King." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"King Cotton." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"La Tossa." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Luxtussa." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Luxura." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Merita." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Mirana." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"M. R. S. Royal." Woolen and Velvet Piece Goods. Morris Rosenbaum's Sons, New York, N. Y.

"Mt. Tom." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"One Mile." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"Oriona." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Peau de Lana." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Peau de Mera." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Pirle." Wool and Mixed Wool Dress Goods. Edward Ripley & Son, Ltd., Bradford, Eng.

"Pongola." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"P. R." Knit Hosiery and Underwear for Men, Women and Children. P. Raguet fils & R. Vignes, Troyes, France.

"Pride of Kentucky Bleached Cotton." Cotton Piece Goods. J. M. Robinson, Norton & Co., Louisville, Ky.

"Radola." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York, N. Y.

"Scandinavia." Woven Belting. The Scandinavia Belting Co., Boston, Mass.

"Shantana." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Shantola." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York, N. Y.

"Silkateen." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

"Solenta." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Splendora." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"Star Trade Mark." Knitted Underwear. John Wanamaker, Philadelphia, Pa.

"Stirling Silk." Silk Piece Goods. Stirling Silk Mfg. Co., Stirling, N. J.

"Suesine." Silk and Cotton Piece Goods. Sol Friedman & Co., New York, N. Y.

"Suprada." Silk and Silk Mixed Piece Goods. Susquehanna Silk Mills, New York City.

"The Gallery." Embroideries. Th. D. Eisner & Son, New York City.

"W. T. Co." Sewing Silk and Thread. The American Thread Co., Jersey City, N. J.

C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

BUILDERS AND IMPORTERS OF

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MACHINERY

DIRECT .. .. IMPORTERS OF **EGYPTIAN COTTON**

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Huddersfield, Eng.

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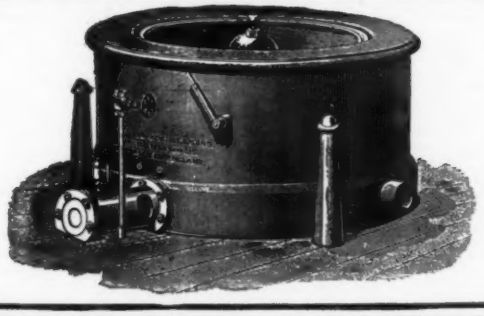

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Our fifteen years experience in stoker, boiler, power, heating, ventilating and drying engineering, is basis of our advice to clients.

Buyers' Index.

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisement. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in these classified lists such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources.

Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Accounts Financed.
Cathrall, W. M.

Air Moistening System.
American Moistening Co.
Bell Pure Air & Cooling Co.

Architects and Mill Engineers.
Ferguson, John W.
Main, Chas. T.
Suck, Adolph.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Floors.
Simpson Bros. Corporation.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
American Drying Machinery Co.
Harwood, Geo. S., & Son.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Automatic Warp Tying Machines.
Barber-Colman Company.

Bale Ties.
Acme Steel Goods Co.
DeHaven Manufacturing Co.

Balling Machine.
Torrance Mfg. Co.

Bandings.
——See under Yarns.

Baskets.
Lane, W. T., & Bro.
Morris & Co.

Belting.
Chicago Belting Co.
Gandy Belting Co.
Main Belting Co.
Shultz Belting Co.
Ulmer Leather Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Shultz Belting Co.
Stephenson Mfg. Co.
Ulmer Leather Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Allen, Wm., Sons Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Roessler & Hasslacher Chemical Co.

Blowers and Blower Systems.
American Blower Co.
Green Fuel Economizer Co.
Mass. Fan Co.
New York Blower Co.
Philadelphia Drying Machinery Co.
Sterling Pipe & Blower Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Tebbets, E. L., & Co.
Wilson & Co.

Boiler Cleaners.
Johns-Manville Co., H. W.

Boiler Compound.
Johns-Manville Co., H. W.

Boiler Inspection and Insurance.
——See Steam Boiler Insurance.

Boilers.
——See Steam Boilers.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Box Shook.
Connecticut Box Company.

Box Strapping.
Acme Steel Goods Co.
De Haven Mfg. Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brazing.
American Ferrofix Brazing Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
——See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.
Morris & Co.

Carbonizing.
Riverdale Woolen Co.

Carbonizing Machinery.
American Drying Machinery Co.
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Bowes, L. M., Co.
Leigh, Evan A.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Stoddard, Haserick, Richards & Co.

Carded Cotton.
Blaisdell, S., Jr., Company.
Wonalancet Company.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Stoddard, Haserick, Richards & Co.

Carders' Tools.
Brown, Wm. H., Co.

Carpet Machinery.
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

Casting Repairs.
American Ferrofix Brazing Co.

Castings.
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

Casualty Insurance (All Kinds).
Maryland Casualty Co.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chain Blocks and Hoist.
Yale & Towne Mfg. Co.

Chemicals.
Harding & Fancourt.
Roessler & Hasslacher Chemical Co.
Solvay Process Co.

Chemists.
Little, Arthur D.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Pettes & Randall Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.
Smythe, J. L. N., Paper Co.

Cloth Cutting Machinery.
Cameron Machine Co.

Cloth Stretchers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Leyland, Thomas, & Co.
Textile Finishing Machinery Co.

Clutches.
American Tool & Machine Co.
Hunter, James, Machine Co.

Combs (Wool and Cotton).
Hood, R. H.
Leigh, Evan A.
Lowe, S. C.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.

Concrete Work and Construction.
Gilbreth, Frank B.
Simpson Bros. Corporation.
Suck, Adolph.

Condensers.
Dean Bros. Steam Pump Works.

Consulting Electrical Engineer.
Puffer, William L.

Conveying Systems.
Sturtevant, B. F., Co.

Conveyors, Pneumatic.
——See Blowers & Blower Systems.

Cop Spindles.
American Textile Specialty Mchy. Co.

Cop Tubes.
American Textile Specialty Mchy. Co.
——See Paper Tubes.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Butterworth, H. W., & Sons Co.
Textile Finishing Machinery Co.

Cork Inserts.
National Brake & Clutch Co.

Cornices.
Irwin, Thos. W., Mfg. Co.

Corrugated Iron and Steel.
Scaife, W. B., & Sons.

Cost and Accounting Systems.
Wright, R. A.

Cotton.
Blaisdell, S., Jr., Co.
Charles, W. B.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Stoddard, Haserick, Richards Co.
Tolar & Hart.

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Cotton Machinery.
Altemus, Jacob K.
American Textile Appliances Co.
American Textile Specialty Mchy. Co.
American Drying Machinery Co.
Ashworth Bros.
Barker, James.
Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Hetherington, John, & Sons, Ltd.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kip-Armstrong Co.
Kitson Machine Co.
Leigh, Evan A.
Lowe, S. C.
Lowell Machine Shop.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Providence Machine Co.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford, G. W., Mfg. Co.
Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.
Whitin Machine Works.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.

Cotton Softeners.
Bosson & Lane.
Harding & Fancourt.
Nicetown Mfg. Co.
Zurn, O. F., Co.

Cotton Waste.
Blaisdell, S., Jr., Co.
Charles, W. B.
Schofield, Edwin F.

Cranes.
Northern Engineering Works.
Yale & Towne Mfg. Co.

Crayons.
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

Cutters for Knit Goods.
Langston, Samuel M.

Cutting Machines.
Cameron Machine Co.

Cylinder Oil (Superheated Steam).
Power Specialty Co.

Dextrine.
Stein, Hirsh & Co.

Dobbies.
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford, G. W., Mfg. Co.

Draughtsmen.
Cameron Machine Co.

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Metallic Drawing Roll Co., The.

Drying Machinery.
American Blower Co.
American Drying Machinery Co.
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Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buffalo Forge Co.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Whiteley, William, & Sons, Ltd.

Drying Boards.
Bull, William C.
Pearson, J. T.

Dusters.
—See Wool and Waste Dusters.

Dust Collectors.
Knickerbocker Co., The.
Philadelphia Drying Machinery Co.
Sterling Blower & Pipe Mfg. Co.
Sturtevant, B. F., Co.

Dyers, Bleachers and Finishers.
Brophy's, T., Sons.
Davidson, J. F.
Firth & Foster Co.
Germania Dye Works.
Globe Dye Works Co.
Home Bleach & Dye Works.
Ingrahamville Dye Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
Rowland, Samuel.
Scranton Yarn Finishing Co.
Western Thread & Dye Works.

Dyeing, Drying, Bleaching and Finishing Machinery.
Allen, William, Sons Co.
American Blower Co.
American Drying Machinery Co.
American Dyeing Machine Co.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch, Arthur, Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Cohnen Dyeing Machine Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunt, Rodney, Machine Company.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh, Evan A.
Leyland, Thos., & Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Sirocco Engineering Co.
Sturtevant, B. F., Co. (Drying).
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Whiteley, William, & Sons, Ltd.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Floors.
Simpson Bros. Corporation.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.

Dye Tubs.
—See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Atteaux, F. E., & Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Continental Color & Chemical Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Solvay Process Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.

Dynamos.
—See Electric Lighting.

Edgings.
—See Tapes, Braids and Edgings.

Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Westinghouse Electric & Mfg. Co.

Electrical Engineer (Consulting.)
Puffer, William L.

Electrical Heating Devices.
Johns-Manville Co., H. W.

Electrical Supplies.
Johns-Manville Co., H. W.
Pettingell-Andrews Co.

Electric Fans.
American Blower Co.
Crocker-Wheeler Co.
General Electric Co.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sterling Blower & Pipe Mfg. Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Northern Engineering Works.
Yale & Towne Mfg. Co.

Electric Lamps.
Pettingell-Andrews Co.

Electric Lighting.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Motors.
Crocker-Wheeler Co.
General Electric Co.
Peerless Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Elevators.
Salem Elevator Works.

Embossing Machines.
Cameron Machine Co.

Embroidery Machines for Hosiery and Knit Goods.
Walther, Otto.

Employees' Time Recorders.
Pettes & Randall Co.

Exhaust Heads.
Sterling Blower & Pipe Mfg. Co.
Sturtevant, B. F., Co.

Expansion Joints.
Power Specialty Co.

Fans—Exhaust and Ventilating.
—See Ventilating Apparatus.

Feed Water Heaters.
Green Fuel Economizer Co.
Harrison Safety Boiler Works.
Scaife, W. B., & Sons.

Feed Water Pumps.
Goulds Mfg. Co.

Feed Water Purifiers.
Harrison Safety Boiler Works.
Philadelphia Water Purification Co.
Scaife, W. B., & Sons.

Feeds.
—See Automatic Feeds.

Felt Hardeners.
Farrel Foundry and Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.

Fibre Spools.
Cell Drier Machine Co.
Rhode Island Fibre Spool Co.

Filters.
American Water Softener Co.
Norwood Engineering Co.
Phila. Water Purification Co., The.
Scaife, W. B., & Sons.

Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.

Fire Extinguishers.
Badger, E. B., & Sons Co.
Johns-Manville Co., H. W.

Fire Hose.
Eureka Fire Hose Co.

Fire Hydrants.
Norwood Engineering Co.

Fire Insurance.
Home Insurance Co.

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For Summer Ventilation Use a Sturtevant Electric Fan

Built in full line of sizes from 18 inch to 120 inch with capacities from 2,000 to 175,000 cubic feet per minute. Motors entirely enclosed. Also built as pulley fans in same sizes.

Immediate shipment can be made from works or branch houses.

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B. F. STURTEVANT CO., BOSTON, MASS.

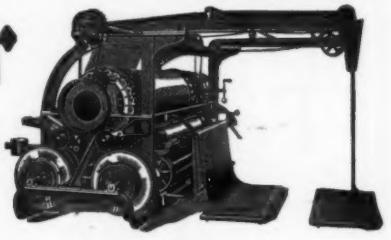
General Office and Works, Hyde Park, Mass.

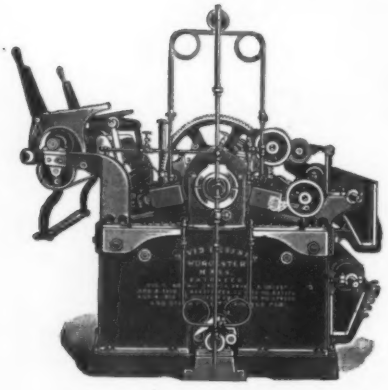
NEW YORK PHILADELPHIA CHICAGO CINCINNATI LONDON

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fan Blowers and Exhausters; Rotary Blowers and Exhausters; Steam Engines, Electric Motors and Generating Sets; Pneumatic Separators, Fuel Economizers, Forges, Exhaust Heads, Steam Traps, etc. 624

David Gessner

Worcester, Mass.





Latest Improved Cloth Finishing Machinery

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Napping Machines and Presses a Specialty

Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.
Irwin, Thos. W., Mfg. Co.

Fire Pumps.
—See Pumps.

Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combe-Barbour, Ltd.

Fluted Rolls.
Hood, R. H.
Leigh, Evan A.
Riley, C. E., Company.
Thurston, A. G., & Son.

Flyers.
Bodden, Wm., & Son, Ltd.
Hopkins Machine Works.
Leigh, Evan A.

Forges.
Sturtevant, B. F., Co.

Forwarders.
Salvator Transfer, Inc.

Friction Clutches.
National Brake & Clutch Co.

Friction Cones.
Evans, G. Frank.

Friction Rings.
National Brake & Clutch Co.

Fuel Economizers.
Green Fuel Economizer Co.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Hunt, Rodney, Machine Co.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Leigh, Evan A.
Smith & Furbush Machine Co.

Gas Blowers and Exhausters.
Sturtevant, B. F., Co.

Gas Engines.
Jones, Lewis.

Gaskets (Superheated Steam).
Power Specialty Co.

Gassing Machines.
Stubbs, Joseph.

Gauges.
Crosby Steam Gage & Valve Co.
Walworth Manufacturing Co.

Gears.
Farrel Foundry and Machine Co.
New Process Raw Hide Co.
Philadelphia Gear Works, Inc.

Gear Cutting.
Farrel Foundry and Machine Co.

Gear Cutting Machine.
Whiton, The D. E., Co.

Generating Sets.
Crocker-Wheeler Co.
Sturtevant, B. F., Co.

Glue.
Union Casein Co.

Governors (Water Wheel).
Natl. Water Wheel Governor Co.

Grease.
Cook's, Adam, Sons.

Grease Cups.
Cook's, Adam, Sons.

Grids for Lappers.
Schaellibaum, R., Co.

Heating.
—See Ventilating.

Heddles.
Steel Heddle Mfg. Co.
Stoddard, Haserick, Richards & Co.

Hoisting Apparatus.
Economy Engineering Co.
Northern Engineering Works.
Yale & Towne Mfg. Co.

Hosiery Boards.
Pearson, J. T.

Hosiery Labels.
Beck, Charles, Paper Co.
Kaumagraph Company.

Humidifying Apparatus.
American Moistening Co.
Bell Pure Air & Cooling Co.
Buffalo Forge Co.

Hydraulic Rams.
Power Specialty Co.

Hydro Extractors.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Hunt, Rodney, Machine Company.
Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
Whiteley, William, & Sons, Ltd.

Illuminating Engineer.
Puffer, William L.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

Insurance (Casualty, Fire and for Loss of Profits.)
Home Insurance Co.
Maryland Casualty Co.

Investments.
Cross Creek Coal Co.

Invoices Discounted.
Cathrall, W. M.

Jacquards.
Halton's, Thomas, Sons.

Knit Goods, Edgings, Trimmings, Etc.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

Knit Goods, Finishing Machines, Crochet, Etc.
Eastman Machine Co.
Hunt, Rodney, Machine Company.
Langston, Samuel M.
Merrow Machine Co., The.
Nye & Tredick Co.
Robinhold Machine Co.
Scott & Williams.
Union Special Machine Co.
Willcox & Gibbs Sewing Machine Co.

Alphabetical Advertising Index, with page numbers, follows this list.

"O.K." PEERLESS INCANDESCENT LAMPS

Our "O.K." Peerless Lamps are without exception the best lamps for Mill Lighting. We know that if you give them a trial you will be more than satisfied.

We want your contract, and should be pleased to have our lamp expert call on you, and ascertain just what type of lamp is best adapted to your purpose.

Pettingell-Andrews Company,

BOSTON, - - - - - - - - MASS.

Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.

Knitting Machinery.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Cooper, Chas.
Crane Mfg. Co.
Excelsior Knitting Machine Mfg. Co.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Jenckes, E., Mfg. Co.
Jones, Lewis.
Lamb Knitting Mach. Mfg. Co.
Leighton Machine Co.
Mayo, Geo. D., Knitting Machine Co.
Mayo Knitting Machine & Needle Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Ruth Machine Co.
Scott & Williams.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros.
Walter & Co.
Walther, Otto.
Wildman Mfg. Co.

Knitting Needles and Supplies.
Breedon's, Wm., Son.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Dodge Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Jarrard Needle Co.
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Page Needle Co.
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Wardwell Needle Co.

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Green Fuel Economizer Co.
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Dinsmore Mfg. Co.
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Walter & Co.
Willcox & Gibbs Sewing Machine Co.

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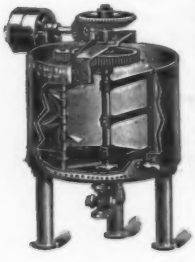

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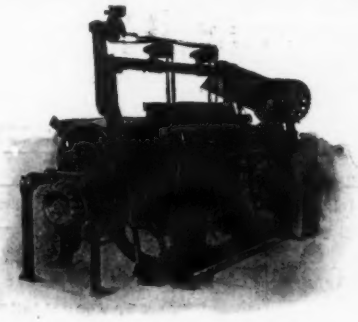

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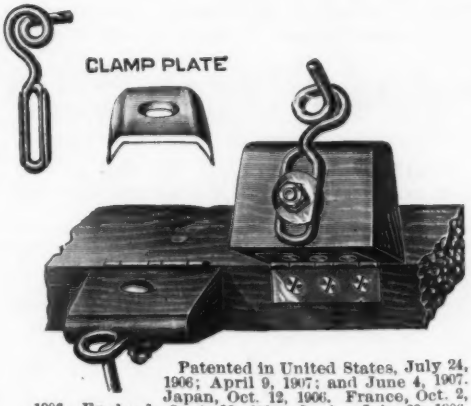

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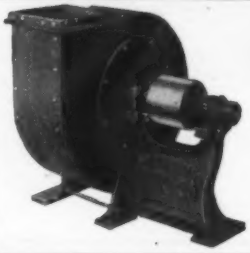

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A. C. STALEY MFG. CO., South Bend, Ind.

WANTED BY A SALESMAN carrying a line of wool hosiery in North Dakota, a full line of cotton hosiery. Address Valdemar Jessen, Dickinson, North Dakota.

"CROSS CREEK" Sixes

That means first mortgage sinking fund gold bonds, being a first lien on 7000 acres of the best bituminous coal in the South. Located in Marion and Franklin Counties, Tennessee. Contiguous to the markets that pay the best prices and insist upon a high-grade domestic and steam coal.

Synopsis of Expert Engineer's Report:

"Page 24,	Total Production	60,000,000 tons
" 36,	Annual Production	400,000 "
" 37,	" Mining Profit . . .	$300,000.00
	" Store Profit	60,000.00
	" Rent "	20,000.00
	Total Annual Profit (One Works)	$380,000.00
	Period of Operation	50 Years
	Total Value of Field . . .	$15,000,000.00

NOTES:—The store and rent profits are based on authentic data. The period of operation and value of field are assumed on a drop of 50% in the markets of the future, combined with a doubling of the production."

The first works, now building, will have a capacity of 2000 tons per day and there is room for four more, which the Company will build as soon as possible.

Only a limited amount of the bonds remain unsold and we are very desirous of interesting with us some of the people in the textile industry.

Particulars as to the bonds, preferred stock, management, list of the stockholders, markets, railroad facilities furnished at the office of the

Cross Creek Coal Company

609 Mutual Life Bldg. BUFFALO, N. Y.

Send for a copy of "Facts About the South". It will interest you.

MEN WANTED.

Same rates as Wants, For Sale, etc. Manufacturers will be furnished, without charge, with the names of suitable men who are entered on our list, and can usually supply their wants in this way.

WANTED
AN EXPERIENCED KNITTER.

Must have knowledge of Lamb Machines and of Automatic Power Machines on Sweaters. Address stating salary and giving references: "Sweaters," care Textile World Record, Boston, Mass.

Opportunity for a Knitter with a little Capital

There is an opportunity for a man who understands looping and welting to get into a first class paying business for an investment of a small amount of money; either in the South or East. A plant in which I am interested is turning away work, and I want to start another. Only a man with capital need apply. Address, "Looping" care Textile World Record, Boston, Mass.

WANTED

Young or middle aged man, for a woolen mill making woolen and merino yarns for knit goods trade, one that is capable of acting as superintendent and selling yarns. Salary can be adjusted and working interest will be given to right man. Address "E. H. C." care Textile World Record, Boston, Mass.

WANTED.

Knitter with experience on Cooper Circular Spring Needle Machines. Address,

J. E. N., care TEXTILE WORLD RECORD, Boston, Mass.

We are continually having inquiries for fixers on knitting machines, both underwear and hosiery, also sewing machine fixers. For further information address Overseer's Bureau, care of Textile World Record, Boston, Mass.

SITUATIONS WANTED.

The following advertisements are a portion of those of superintendents and overseers, of whom full particulars are on file at this office. Manufacturers who may be in need of such men may address them in care of Textile World Record, Boston, or state their requirments directly, and the addresses of suitable men will be furnished without charge.

Mr. C. T. Donlevy, a practical mill overseer and superintendent, who has a wide aquaintance with mill men, is now a member of the Textile World Record staff, and gives special attention to this department. He would be pleased to hear from any of his friends who may be interested. Address Textile World Record, 144 Congress St., Boston, Mass.

Experienced Dyer and Bleacher Wants Situation. Twenty-nine years old, has worked on all wool and cotton wool piece goods, loose wool, worsted yarn and hosiery. Is thoroughly acquainted with aniline and alizarine dyes on all kinds of material. Address "Experienced," Textile World Record.

Superintendent of Cotton Mill, or overseer of cotton weaving. Position wanted by a man 38 years of age, married, American. Worked on shirtings, sateens, dress goods, satin and Marseilles quilts. Familiar with Crompton, Knowles, Whitin and English looms; Lowell frames; Saco & Pettee cards. Good references. 4031 Textile World Record.

Assistant Superintendent or Overseer of weaving in a cotton mill. Position wanted by a man 31 years of age, married, American. Worked on plain sateens, fancy lenos, box work, as high as 100s warp, and 160s filling. Familiar with all kinds of machinery. Will not go West, South or Canada. Good references. 4019 Textile World Record.

Superintendent or Overseer of Weaving in a cotton mill. Position wanted by a man 46 years of age, married, American. Worked on colored and white goods, both fancy and plain. Familiar with Crompton, dobby and box looms; Knowles' dobby and box looms; Mason dobby and box; Whitin and several others. Good references. 4023 Textile World Record.

Overseer of Finishing in a woolen mill. Position wanted by a man 35 years of age, married, American. Worked on all classes of woolen and worsted goods, from highest to lowest grades. Familiar with all kinds of machines. Will not go West, South, Canada, Maine, Vermont, Pennsylvania. Good references. 4026 Textile World Record.

PRACTICAL CARPET MAN

Desires position as Dyer and Designer. Capable of taking charge as superintendent. Address "Carpet" care Textile World Record, Boston, Mass.

Wanted. Position as overseer or knitting machine fixer of a knitting mill manufacturing fancy sweaters, cardigans, ladies' blouses, vests, etc. Familiar with Seyfert & Donner, Claes & Flentje full automatic knitting machines. Will send samples of own work. Am also capable of taking charge of finishing. Address "Dane," Textile World Record.

Assistant Superintendent or Superintendent of a woolen mill, or in commission house. Position wanted by a man 29 years of age, married, American. Worked on all kinds of woolen goods. Familiar with all kinds of machinery. Good references. 4025 Textile World Record.

Superintendent of Finishing and Dyeing Works, woolen, worsted, blankets, flannels, etc. Position wanted by a man 29 years of age, English, married. Worked on all kinds of woolen and worsted goods for ladies' and gents' wear. Familiar with all English makes of machinery and a few of the American makes. Good references. 4013 Textile World Record.

Boss Finisher or Assistant Designer, or boss burler and sewer in a woolen mill. Position wanted by a man 25 years of age, married, American. Worked on kerseys, thibets, plain and fancy cheviots, cassimeres, homespuns, dress goods, flannels and various piece dyes. Familiar with Knowles' looms, Jaines, Hunter, Rodney, Hunt, Parks, Woolson, Curtis & Marble. Will not go West, South or Canada. Good references. 4012 Textile World Record.

WOOLEN SUPERINTENDENTS.

Woolen Superintendent of small mill or assistant superintendent in large mills, or boss finisher, by practical mill man raised in the business. Worked through card room, dressing and weave rooms, and all the departments of finishing. Overseer 20 years; strictly temperate; have family; Scotchman. 3200, Textile World Record.

Superintendent of worsted yarn plant or overseer of drawing and spinning. **Worked on Australian**, English, domestic woolens, mohair, alpaca, spun from 8s to 70s, also carpet yarn. Age 38; American; widower. First-class references. 3221, Textile World Record, Boston.

Woolen Superintendent or overseer of dyeing or finishing. Worked on all kinds of woolen goods, worsted and union. Age 39. Will not go South or West. First-class references. 1210, Textile World Record.

Worsted Superintendent or overseer of combing, spinning and twisting. Worked on mohair, alpaca, all foreign and domestic wools. Familiar with all kinds of machinery; first-class references. Age 45, married. 3248, Textile World Record.

Woolen Superintendent or designer, assistant superintendent and designer. Worked on all kinds of woolen goods, men's wear, dress goods, shirtings and silk goods. 37 years of age, married, American. Good references. 3445, Textile World Record, Boston.

Superintendent in a Woolen Mill or overseer of finishing in a large woolen mill. Position wanted by a man, 50 years of age, American, married. Has had a wide experience in large mills as superintendent; previous to taking up this end, was overseer of finishing in large mills. First-class recommendations. 3762, Textile World Record, Boston.

Superintendent and designer. Position wanted by a man, Scotch, 31 years of age and married. Has worked on Scotch tweeds, fancy cassimeres, overcoatings, wool and worsted dress goods. Is familiar with all kinds of machinery and has first-class references. 3496, Textile World Record, Boston.

Superintendent and Designer. Position by a man who has had a number of years of experience in good mills on men's wear, dress goods of all descriptions, worsteds, wool, cotton and silk. 35 years of age. American, married. 3453, Textile World Record, Boston.

Superintendent of Woolen Mill. American, 40 years of age, accustomed to woolens, worsteds, cottons and shoddy. Worked on all kinds of machinery. Would accept position as Superintendent and Designer and would like to go South. 3405, Textile World Record, Boston.

Superintendent. Position wanted by a young man 28 years of age. Worked on all kinds of cotton goods, fancy colored goods and plain. Worked on all kinds of cotton machinery. American. 3458, Textile World Record, Boston.

Superintendent of Finishing Works or overseer. Position wanted by a man who has a wide experience on cotton goods of all kinds, fast blacks and sateens. 49 years of age, married, with good reference from past employer. Will go any place for a good position. American. 3461, Textile World Record, Boston.

Superintendent or superintendent and designer. 45 years of age, with experience on fine fancy worsteds and piece dyes, fancy and piece dye cheviots, fancy woolens and worsteds, also mercerized piece dyes. Understands silk manufacture also. 3382, Textile World Record, Boston.

Superintendent or Assistant Superintendent in a large woolen mill. Position wanted by a man 52 years of age, married, English. Has worked on unions, satinets, cheviots, thibets, cloakings, overcoatings, dress goods, beavers and all kinds of woolen goods. Familiar with all kinds of woolen machinery. Good reference. 3776, Textile World Record, Boston.

Woolen Superintendent and designer. Worked on men's wear, worsteds, fancy cassimeres, smoking jackets, over-cloth, ladies' dress goods. 28 years of age; English; single. 3234 Textile World Record.

COTTON SUPERINTENDENTS.

Superintendent plain cotton mill, or overseer of plain weaving. Position wanted by a man 50 years of age. Understands all kinds of plain cotton weaving. Familiar with Whitin, Mason, Colvin and Taunton machines. First class references. 3926, Textile World Record, Boston.

Superintendent of a Cotton Mill. Position wanted by a man 37 years of age, married, English. Worked on carded and combed, white and colored hosiery yarns 6s to 40s. Combed Peeler, Egyptian 2 ply warps and skein 40s to 80s filling up to 140s. Familiar with all kinds of machinery, especially English. Good references. 3902, Textile World Record, Boston.

Superintendent of Silk Mill or an overseer of warping. Position wanted by a man 31 years of age, Swiss, married. Speaks German, French, Italian and English. Understands all kinds of winding, spooling and twisting machines. Is familiar with office work. Has worked on silk goods, broad silk, 2, 3, 4, 5 beam work, fancy, jacquard and raw silk goods. Good references. 3908, Textile World Record, Boston.

Superintendency of Bleaching, dyeing and finishing wanted by a thoroughly practical man, textile chemist, at present employed. Has had wide experience on the finest muslins and organdies. Laces and embroideries a specialty. Fully understands aetying, fireproofing, carbonizing, singeing, dyeing, etc. A practical man and no experimenter. An expert bleacher and finisher. 3443, Textile World Record, Boston.

Manager or Superintendent in small yarn mill, or overseer of mule or ring spinning in a large mill. Position wanted by a man 42 years of age, American, married. Worked on all kinds of cotton goods and yarns. Familiar with mule, ring frames, spoolers, twisters, etc. Will not go to Canada. First class references. 3907, Textile World Record, Boston, Mass.

Superintendent Cotton Mill or overseer of carding in large mill. 35 years of age; married; American. Worked on coarse and fine fancy cloths. Carded combed staple cotton for weaving as fine as 135s. Carded solid colors and mixes for hosiery yarns to 80s. Good references. 3447, Textile World Record, Boston.

Superintendent, Assistant Superintendent and Designer, or overseer of weaving and finishing. Position wanted by a man 33 years of age, American. Is experienced on ginghams, madras, shirtings, linings, lawns, silks and ducks. Is familiar with all kinds of cotton machinery. Good references. 3616, Textile World Record, Boston, Mass.

Superintendent of bleaching. Worked on all kinds of lawns, lenos and colored lenos, towels, colored and white, ducks, drills, sateens, tickings. Age 55; English; married. First-class references. 3245, Textile World Record.

Superintendent or Agent of Cotton Mill. Position wanted by a man 43 years of age, married, American. Has worked on all kinds of cotton and worsted goods, and is familiar with Draper, Crompton & Knowles, Lowell, Whitin, Mason, Kilbourn and Lincoln looms. Good references. 3669, Textile World Record, Boston, Mass.

Superintendent of Bleach or Dye Works, or would consider overseer in any department. Worked on sheetings, shirtings, cambrics, lawns, quilts, prints and linens. No knowledge of yarns. 38 years of age. Scotch; married. 1620, Textile World Record.

Superintendent of a Bleachery or Dye Works or overseer of mercerizing. Worked on all kinds of goods, including bed spreads, towels, ducks, sheetings, drills, cambrics, cotton flannel, bags, shoe lining and window shades. 42 years of age; married; English. 3274, Textile World Record, Boston, Mass.

Superintendent. Would like position in South. Not particular about salary to start. Machinist and thoroughly acquainted with all kinds of card room machinery, also spinning frames. Taken superintendent course in textile school and has had 23 years of practical experience in the mill, mostly on fine yarn work. 3044, Textile World Record.

Cotton Superintendent, worked on all kinds of sheetings, sateens; all kinds of fancies, lenos and lappets, Jacquard, cotton and silk mixed. Age 35; first-class references. 1934, Textile World Record.

WOOLEN SPINNERS.

Overseer of Spinning in a cotton mill, or superintendent of a small yarn mill. Position wanted by a man 33 years of age, married, English. Worked on yarns from 40s to 150s. Familiar with all kinds of machines. Good references. 4016 Textile World Record.

Overseer or Second Hand of spinning in a woolen mill. Position wanted by a man 28 years of age, married, American. Worked on fancies and twists, etc. Familiar with Davis & Furber mules. Good references. 4022 Textile World Record.

Overseer of Woolen Spinning. Position wanted by a man 40 years of age, American, married. Has worked on all kinds of yarn and stock. Familiar with D. & F. and J. & B. mules. Good reference. 3818, Textile World Record, Boston, Mass.

Overseer of Spinning. American, with experience on nearly all classes of woolen and worsted goods, and on all machinery used in his work, wants position in the East. Best of references furnished. Wants first-class position. 3384, Textile World Record.

Overseer of Woolen Spinning. Position wanted by a man, 45 years of age, American, married. Has worked on all kinds of stock, cotton, wool and shoddy. Familiar with the D. & F., J. & B., Brother Operators, Dancroft and Wright machines. Good reference. 3794, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning or carder and spinner. Position wanted by a man 45 years of age, American, married. Worked on all classes of woolen goods. Familiar with all makes of mules and cards. Prefers a position in Mass., R. I., Conn. or N. H. Good references. 3943, Textile World Record.

Overseer of Spinning or carder and spinner in a small woolen mill. Position wanted by a man 55 years of age, married, American. Has worked on all kinds of wool, shoddy and cotton mixes, yarns from 1/2 to 10 run. Familiar with D. & F., J. & B., Whitley, Smith & Molton mules. Good reference. Will not go South or Pennsylvania. 3933, Textile World Record.

Overseer Woolen Spinning. Position wanted by a man 31 years, single. Has worked on cassimeres, blankets, hosiery, and all grades of fine woolen. Won't go to Main or Canada. Could take position at once. Good references. 3892, Textile World Record.

Overseer of Woolen Spinning. Position wanted by a man 42 years, American. Worked on all kinds of stock, cotton, woolen, shoddy mixes. Has had 14 years' experience as overseer. Familiar with D. & F., G. & B. and Brotherheads. Could take position at once. Good references. 3879, Textile World Record.

Overseer of Spinning, spooling, warping and slashing. Position wanted by a man 45 years of age, American. Has worked on all kinds of cotton goods. Familiar with Fales & Jenks, Whitin, Mason & Saco machines. Will not go West, South or to New York. Good references. 3910, Textile World Record, Boston.

Overseer of Woolen Spinning. Position wanted by a man 46 years of age, Scotch. Has worked on all kinds of stock, also hosiery yarn. Familiar with D. & F., J. & B. and English pawl mules. Could take position at once. Good references. 3912, Textile World Record, Boston.

Overseer of Spinning. Position wanted by a man 35 years of age. Has worked on all wool, wool and cotton and shoddy mixes. Is an experienced overseer and is familiar with English, Platt & Latham, Davis & Furber, Johnson & Bassett, Bridesburgh, Penn and Furbush mules. Good references. 3554, Textile World Record, Boston, Mass.

Woolen Boss Spinner, or would accept a good secondhand position. Familiar with all kinds of American spinning machinery; Davis & Furber, Johnson & Bassett, English mules, Curtis and Platt. First-class references; age 48; English. Could take a position at once. 589, Textile World Record.

Overseer of Worsted Spinning and twisting. Position wanted by a man, 32 years of age, single, English. Worked on all kinds of carpet and hosiery yarn and has been overseer in leading mills in England, Scotland and United States. Familiar with all kinds of worsted spinning machinery. Good reference. 3808, Textile World Record, Boston, Mass.

WOOLEN CARDERS.

Overseer of Woolen Carding. Position wanted by a man 37 years of age, married. Worked on all grades of woolen goods. Familiar with all woolen cards. Will not go West or South. One girl in the family, work in the finishing room. Good references. 3952 Textile World Record.

Overseer of Carding in a woolen mill. Position wanted by a man 42 years of age, married, American. Worked on kerseys, dress goods, cassimeres, high and low stock. Familiar with all kinds of American machinery. Good references. 4005 Textile World Record.

Overseer of Woolen Carding. Position wanted by a man 39 years of age, married. Worked on all kinds of goods. Familiar with all kinds of machinery. Two workers in the family. Will not go West, South, Canada or Pennsylvania. Good references. 3987 Textile World Record.

Overseer of Carding in woolen or hosiery mill. Position wanted by a man 35 years of age, married, American. Worked on all classes of goods and all kinds of stock. Familiar with all kinds of American and English cards, and all kinds of condensers and feeds. Will not go West, South or Canada. Good references. 3988 Textile World Record.

Overseer of Woolen Carding. Position wanted by a man, 47 years of age, American, married. Has handled all kinds of stock, cotton, wool and shoddy mixes on yarns from 1 to 6 run. Has been employed for a number of years in leading mills. First class reference. 3815, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. 32 years of age, married, wants position in the East. Accustomed to cassimeres, cheviots, dress goods, wool, cotton and shoddy mixes, all wool, from 1 to 7 run. Worked on the machinery used in this work. 3436, Textile World Record.

Overseer of Carding and Spinning in a woolen mill. Position wanted by a man 33 years of age, married, American. Worked on hosiery yarn, blankets, cassimeres, meltons, flannels, felt, etc. Familiar with D. & F., J. & B. mules; Smith, Cleveland and Furbush cards. Good references. 4029 Textile World Record.

Overseer of Carding in a knitting, woolen or shoddy mill. Position wanted by a man 33 years of age, married, American. Worked on wool, cotton and extract shoddies, dress goods, overcoatings, cassimeres, etc. Familiar with all kinds of carding machines, also J. & B., D. & F. and Bridesburg mules. Will not go to Maine, New Hampshire, Vermont, Massachusetts or Canada. Good references. 4017 Textile World Record.

Boss Carder and Spinner in a Woolen Mill. Familiar with all grades of woolen and mixed goods. Familiar with all makes of American carding and spinning machinery. Will not go West or South; 40 years of age; first-class recommendations; American. 3294, Textile World Record, Boston, Mass.

Overseer of Carding. Position wanted by a man 57 years of age, married, American. Has worked on all kinds of woolen goods, and is familiar with all makes of American and English carding machinery. Has first-class recommendations. 3525, Textile World Record, Boston, Mass.

Overseer of Woolen Carding or second hand in large mill. Worked on all wool shoddy and cotton mix, silk noil goods. 43 years of age; married; good references. One worker in family for finishing room. 3444, Textile World Record.

Boss Carder in a woolen mill. Worked on all wools, cotton and shoddy mixes, and is familiar with Davis & Furber and Cleveland cards, and all makes of rub aprons and different rub rolls. 29 years of age; American; first-class references. 2284, Textile World Record.

Overseer of Carding.. Position wanted by a man 35 years of age, American. Has worked on all wool, cotton and shoddy mix goods, and is familiar with Lombard, Davis & Furber and Smith carding machinery. Good references. 3661, Textile World Record, Boston, Mass.

DESIGNERS.

Designer or assistant superintendent. Worked on cotton warp flannel coverts, plain and fancy cotton warp, and all wool dress goods. First-class references. 3244, Textile World Record.

Designer on any class of dress goods waistings, mantle cloths, fine shirtings, etc. 3203, Textile World Record.

Designer and Assistant Superintendent. Position wanted by a man 31 years of age, married, Scotch. Is experienced on cassimeres, cheviots, coverts, outing rain coatings, piece dyes and has had some experience on worsteds. Is familiar with Crompton & Knowles looms. Good references. 3625, Textile World Record, Boston, Mass.

Designer. Worked on ladies' dress goods, shirtings and flannels and some jacquard designing; first-class recommendations; 33 years of age; married. 3285, Textile World Record.

Designer or superintendent. Age 37; English; married. Experienced in this country and England. Worked on cloakings, suitings, coverts, broadcloths, etc. Wants $30 to $40 per week. Mill closed, and wants place at once. Good references. 3140, Textile World Record.

Assistant Designer. Position wanted by a man 21 years of age, American. Is a graduate of the Lowell Textile School, and has worked on all kinds of cotton goods, woolen and worsted dress goods and men's wear. First-class references. 3649, Textile World Record, Boston, Mass.

Designer. Position wanted by an American, 28 years of age and married. Worked on checks, plaids, madrases, cheviots, woolen and worsted suitings, fancy ginghams, gauzes, lenos, spot effects and novelties, etc. Is familiar with Crompton & Knowles plain and dobby looms, Mason plain and dobby looms and Kilburn & Lincoln plain looms. Good references. 3432, Textile World Record, Boston.

Designer, assistant superintendent or boss weaver. Familiar with all kinds of worsted dress goods, fancy cotton waistings, corduroys, worsted suitings and cassimeres. Familiar with all kinds of dressing and winding. English and Crompton & Knowles looms. 32 years old; English; first-class references. 3080, Textile World Record.

DYERS.

Color Mixer or Dyer in a cotton mill. Position wanted by a man 32 years of age, married, English. Worked on cotton, wool and a few silks, printing, dyeing. Familiar with aniline blacks in colors and khaki. Good references. 4011 Textile World Record.

Boss Dyer or Finisher or superintendent of both in woolen mill. Position wanted by a man 40 years of age, married. Has worked on raw stock, piece dyes, wool, cotton and shoddy, hosiery and underwear yarns, etc. Could take a position at once. Good references. 3979 Textile World Record.

Overseer of Bleaching. Position wanted by a man 35 years of age, married, American. Worked on skein yarn, tape and warps. Good references. 4008 Textile World Record.

Boss Dyer and Mercerizer in cotton, woolen, silk or hosiery mill. Position wanted by a man 40 years of age, married, American. Worked on wools, unions, silks, hosiery and cops. Familiar with various makes of machinery. Three workers in the family. Will not go West. Good references. 4004 Textile World Record.

Overseer of Dyeing in a cotton mill. Position wanted by a man 37 years of age, married, English. Worked on all standard color for ginghams, knit piece goods for underwear, skein yarns for the thread and shoe lace trade, also bleaching. Will not go West or South. Familiar with Scotch warp machines, Klauder Weldon dyeing machines, reel machine for dyeing knit piece goods. Good references. 4001 Textile World Record.

Boss Dyer in a Woolen Mill. Position wanted by a man 27 years of age, single, English. Worked on piece dyes, woolen and worsted, army and navy indigo blues (synthetic and natural), raw stock. Familiar with Woad vat, Hydrosulphite-Ammonia vat, Bisulphite vat. Good references. 3983 Textile World Record.

WOOLEN WEAVERS.

Overseer of Weaving or Second Hand in large mill. Position wanted by a man 41 years of age, an American, married, has worked on cassimeres, fancy worsteds, suitings, dress goods and overcoatings, has had many years' experience in leading mills, understands the Crompton & Knowles looms, good references. 3703, Textile World Record.

Overseer of Weaving in a woolen mill. Position wanted by a man 26 years of age, American. Worked on plain and fancy worsteds, cotton worsteds, dress goods, cassimeres, kerseys, venetians, flannels, etc. Familiar with Knowles, Crompton, Thayer looms. Will not go to Pennsylvania, New Jersey, South or Canada. Good references. 3981 Textile World Record.

Overseer of Weaving in a woolen mill. Position wanted by a man 51 years of age, married, American. Worked mostly on ladies' dress goods. Familiar with Knowles looms. New England only. Good references. 4007 Textile World Record.

Overseer of Weaving in a woolen mill. Position wanted by a man 37 years of age, married, American. Worked on beavers, kerseys and worsteds. Familiar with Crompton & Knowles looms. Good references. Could accept a position at once. 4000 Textile World Record.

Overseer of Woolen Weaving. Position wanted by a man 32 years of age, American, married. Familiar with Crompton & Knowles looms. Worked on broad cloth, fancy woolen, cassimeres, high and low grade goods. Will not go West, South or Canada. Good references. 3900, Textile World Record, Boston.

Overseer of Woolen Weaving. Position wanted by a man, 40 years of age, English, married. Worked on woolen, worsted and cotton worsted goods. Familiar with Crompton & Knowles looms. Good reference. 3806, Textile World Record, Boston, Mass.

Overseer of Weaving in a woolen mill. Position wanted by a man 35 years of age, single, American. Worked on all kinds of woolens and worsteds. Familiar with Crompton & Knowles looms. Will go anywhere for good position. Good references. 4020 Textile World Record.

Overseer of Weaving or Asst. Supt. Position wanted by a man 48 years of age, married. Has worked on all kinds of fancy woolen and worsted goods, wool and cotton and wool and shoddy mixes, and fancy cotton dress goods; can also design. Is familiar with Crompton & Knowles looms, Gilbert looms and dobby-heads, and Whitin plain and fancy looms. Has good references. 3501, Textile World Record.

Overseer of Woolen Weaving. Position wanted by a man 44 years of age, American, married. Worked on worsted and woolen goods of all kinds, also dress goods. Has one spooler, one sewer and one hander-in in the family. Could take position at short notice. Will not go West, South, New Jersey, New York or Canada. Good references. 3887, Textile World Record.

Overseer of Woolen Weaving. Position wanted by a man 37 years, married, American. Has worked on worsted and woolen goods of all kinds on men and women's wear. Familiar with Crompton & Knowles loom. Could take position at once at reasonable wages. Good references. 3874, Textile World Record.

Overseer of Woolen Weaving. Position wanted by a man 36 years of age; married. Has worked on satinets, unions, cassimeres, men's wear, dress goods, overcoatings and blankets. Is familiar with Knowles, Gilbert, Stafford and Crompton looms. First-class references. 1790, Textile World Record, Boston, Mass.

Overseer of Weaving, or weaver and designer. American, 40 years of age, with experience on all grades men's wear and all makes of woolen looms, pickers, spoolers, twisters, etc., wants a position in the East. 3379, Textile World Record.

Boss Weaver in Woolen Mill, or would accept a good loom fixing position. Worked on satinets, cotton and woolen warp goods, sheetings, shirtings and ducks. Also worked on cotton and woolen jute bagging. 45 years of age. 1806, Textile World Record.

FINISHERS.

Overseer of Finishing in a woolen mill. Position wanted by a man 34 years of age, married, American. Familiar with cassimeres, meltons, thibets, kerseys, worsteds, cloakings, cotton worsteds and all kinds of cotton warp goods. Good references. Familiar with all kinds of finishing machinery. 3958 Textile World Record.

Overseer of Woolen Finishing. Position wanted by a man 26 years of age, single. Worked on kerseys, beavers, broadcloths, meltons, cotton worsteds, men's wear and dress goods. Familiar with all kinds of finishing machinery. Good references. 3954 Textile World Record.

Overseer of Finishing, cutting or seaming department in a knitting mill, or assistant superintendent. Position wanted by a man 42 years of age, married. Worked on flat Balbriggan and fleece lined underwear. Good references. Will not go West, South or Canada. 3966 Textile World Record.

Overseer of Finishing in a woolen mill. Position wanted by a man 37 years of age, married, Swede. Has worked on fancy cassimeres, thibets, woolen goods of all kinds, also union cassimeres. Familiar with all kinds of finishing machines. Good references. 3898, Textile World Record, Boston.

Boss Finisher. Position wanted by a man 47 years of age, American, married. Has worked on worsteds, cotton worsteds, kerseys, dress goods, etc. Is familiar with all American machinery and some English, such as shears and gigs. First-class references. Would prefer a position in New Jersey or Philadelphia. 3924, Textile World Record, Boston.

Overseer of Finishing. Position wanted by a man 27 years of age; married; American. Has worked on cassimeres, dress goods, all face finished goods, fancy and cotton worsteds, piece dyes, satinets, etc. Is familiar with all kinds of finishing machinery. 3338, Textile World Record, Boston, Mass.

Boss Finisher of underwear, cotton or wool mixed goods, who understands Wheeler & Wilson buttonhole machines, Union Button, Union Special, etc., is open to a position in the New England or Middle States. 30 years; American; married. Been employed for a number of years by concern for whom he is now working. Exceptionally good references. 1958, Textile World Record.

Overseer of Finishing. Position wanted by a man 30 years of age, married, American. Worked on worsteds and woolens, both high and low grades, and all kinds of finishing machinery. First-class recommendations. 3503, Textile World Record, Boston, Mass.

Overseer of Finishing. Age 30, American, unmarried, with 6 years' experience as overseer, wants position in New England. Had experience on satinets, unions, and all goods where cotton warp is used, also on nearly all machinery used in making these goods. 3335, Textile World Record.

Overseer of Bleaching. Position wanted by a man 34 years of age, English, married. Has worked on cotton bed quilts, marcellus and crochet, also yarns. Familiar with the Butterwortg machines. Could be employed at short notice. Will not go West or Canada. Good reference. 3836, Textile World Record, Boston, Mass.

Overseer of Cotton Finishing. Position wanted by a man 37 years of age, married, Swede. Has worked on all kinds of cotton goods, plaids and stripes, in all departments of the finishing room. Is familiar with Butterworth finishing machinery. Good references. 3638, Textile World Record, Boston, Mass.

Overseer of Finishing. Position wanted by a man 46 years of age, married, American. Has worked on all kinds of woolens and worsteds, overcoatings, cloakings, dress goods, plushes, satinets and cotton warp fabrics. Is familiar with all kinds of finishing machinery. Good references. 3654, Textile World Record, Boston, Mass.

Overseer of Finishing or asst. supt. woolen mill. Position wanted by a man 50 years of age, married. Worked on all kinds of woolen goods, cotton warp, unions, etc. Familiar with all kinds of finishing machinery. Good references. 3875, Textile World Record.

KNITTERS.

Superintendent of Underwear or hosiery mill. Position wanted by a man 49 years of age, married, American. Has worked on men's, women's and children's underwear in flat, ribbed and full fashioned; also hosiery in cotton, wool and merino. Familiar with all makes of knitting machines from picker to finishing. Good references. 3993 Textile World Record.

Overseer of Underwear Knitting. Position wanted by a man 28 years of age, married, American. Worked on 20 to 22 gauge fleece-lined underwear and 24 gauge Balbriggan. Familiar with Tompkins Spring needle machines only. Good references. 4006 Textile World Record.

Superintendent of a Hosiery Mill. Position wanted by a man 49 years of age, American. Worked on all kinds of wool, worsted and cotton hosiery. Familiar with all kinds of machinery. Good references. 3075 Textile World Record.

Foreman or Fixer in Knitting Mill. Position wanted by a man 34 years of age, married, American. Worked on all classes of cotton hosiery. Familiar with Standard, Acme, Invincible, Geo. D. Mayo loopers, Hepworth ribbers, Ruth Brinton, Wildman machines. Good references. 3999 Textile World Record.

Overseer of Knitting. Position wanted by a man 30 years of age, single. Worked on fine and heavy weight union suits. Familiar with Crane's rib circular machines. Good references. Will not go to Canada. 3946, Textile World Record.

Superintendent or Overseer of knitting. Position wanted by a man 45 years of age, married. Has worked on all kinds of ladies' and men's underwear, flat and ribbed, cotton, woolen, worsted. Familiar with Campbell & Clute, Wildman, Scott & Williams, and Cooper machines, also sewing machines, first class references. 3876, Textile world Record.

Overseer of Finishing in underwear knitting mill, or superintendent of mill making ribbed knit underwear. Position wanted by a man 27 years of age, single. Worked on men's ribbed shirts, drawers and union suits, ladies' shaped vests, pants, union suits, etc. Familiar with Scott & Williams, Snyder & Fisher, Wildman, Champion, Cooper, Collette and other makes of knitting machines; Union Special, Wheeler & Wilson, Singer, Standard, Merrow and American sewing machines. Will not go to Rhode Island, Maine or New Hampshire. Good references. 4028 Textile World Record.

Superintendent of a Knitting Mill. Position wanted by a man 49 years of age, widower, American. Worked on woolen hosiery, sweaters, cardigans, toques, also cotton hosiery to a limited extent. Familiar with E. Jenckes' automatic, Lamb machines and also several makes of ribbers. Good references. 4021 Textile World Record.

Sewing Machine Fixer and boss finisher in a knitting mill. Position wanted by a man 31 years of age, single, American. Worked on men's, ladies' and children's knit underwear. Familiar with Union Special, Merrow, Singer, Wheeler & Wilson, Wilcox & Gibbs, Scott & Williams, Standard and Metropolitan machines. Good references. 4024 Textile World Record.

Overseer of Knitting or knitting machine fixer. Position wanted by a man 22 years of age, English. Has worked on ladies' and gentlemen's fine knit underwear. Is familiar with Cooper Rib Circular and Cooper Circular Cuff machines. Good references. 3597, Textile World Record, Boston, Mass.

Overseer of Tenters. Position wanted by a man 28 years of age, American, married. Worked on cotton, worsted and dress goods. Has had 12 years' experience in this class of work and is familiar with the Granger & Phenix pin and clip frames. Will not go West, South or Canada. Good references. 3885, Textile World Record.

Manager of a Hosiery Mill. Familiar with woolen, worsted and cotton and full-fashioned seamless hosiery. 45 years old. American. First-class references. 1657, Textile World Record, Boston, Mass.

COTTON WEAVERS.

Overseer of Weaving, Assistant Superintendent, or superintendent in a cotton mill. Position wanted by a man 46 years of age, married, American. Worked on prints, sheetings, shirtings, ducks, dress goods, leno, Jacquards, cottons from 4s to 113s warp, and 2.80 to 120 filling. Also on silks from 60s to 345s. Familiar with Lowell, Whitin, Draper, Mason, Lewiston, Knowles, Woonsocket, Colvin looms. Will not go to New York, New Jersey, Pennsylvania, West or South. Good references. 4014 Textile World Record.

Overseer of Weaving or general second hand in a cotton mill. Position wanted by a man, 28 years of age, American, married. Worked on twills, sheetings, drills, sateens, etc. Familiar with Mason, Colvin, Whitin & Draper looms. Good references. 3848, Textile World Record, Boston.

Overseer of weaving, drawing in and twisting. Position wanted by a man 44 years of age; married; English. Has worked on plain twills, sateens, fancy lenos, Jacquard loppetts, also plush goods. Is familiar with Mason, Draper, Whitin and Crompton & Knowles looms. Good references. 3590, Textile World Record, Boston, Mass.

Overseer of silk and cotton weaving. Position wanted by a man 46 years of age; married; German. Has worked on fancy lenos, taffetas, satins, hard silk and skein dyed. Is familiar with all makes of looms. Good references. 3613, Textile World Record, Boston, Mass.

Overseer of Weaving. Worked on ginghams, sheetings, shirtings and dress goods. Familiar with Crompton & Knowles and Mason looms. First-class recommendations, 23 years of age. 3299, Textile World Record, Boston, Mass.

Overseer Cotton Weaving. Plain and a variety of fancies, lenos, etc. Good experience. A young man; English; married. 3147, Textile World Record.

Overseer of Weaving in a cotton mill. Position wanted by a man 27 years of age, American. Worked on plain, twills, sateens, fancies, lenos, flannels, etc. Familiar with Crompton & Knowles, Whitin, Lowell and Mason looms. Good references. 3968 Textile World Record.

Overseer Cotton Weaving. Position wanted by a man who has had experience on plain goods, twills, sateens on all counts from 18s up. 34 years of age; married. Could take a position at short notice. Worked on Mason, Colvin, Whitin, Lowell and Northrop looms. 3455, Textile World Record.

Overseer of Weaving or Supt. in a Cotton Mill. Position wanted by a man 40 years of age, married, an American, worked on plain and fancy cotton goods, lawns, muslins, and on fine and coarse numbers, familiar with all kinds of cotton looms, will not go South, first class recommendations. 3716, Textile World Record.

Overseer of Weaving or designer. Familiar with all kinds of dress goods, lenos, lappets or any kind of fancy Jacquard weaving. Understands all kinds of English and American machinery. Age 46; English; first-class references. 3267, Textile World Record.

Overseer of Weaving. Familiar with shirtings, sheetings, lawns, cambric, ginghams, checks and stripes, union goods, awnings, ducks, drills, light and heavy weight, plain and fancy flannels. 39 years of age, American, first-class references. 3267, Textile World Record, Boston, Mass.

Foreman of Weaving. Worked on ribbons of all descriptions, silk and cotton labels, tapes and lenos. Will not go to Canada or Maine. Age 34, American. First-class references. 3183, Textile World Record.

Overseer of Weaving, superintendent of weaving or designing. Worked on all kinds of cotton dress goods, also suitings. Familiar with all kinds of American and English looms and machinery. Age 41; English; widower. First-class references. 2058, Textile World Record.

Overseer of Cotton Weaving. Position wanted by a man, 42 years of age, American, married. Worked on plain and fancy cotton goods, lappett, lenos and box work sateen worsted, either all wool or cotton mixed. Familiar with Mason, Lowell, Whitin, Draper, Crompton & Knowles, Kilburn and Lincoln looms. Good reference. Could take a position at short notice. 3798, Textile World Record, Boston, Mass.

COTTON CARDERS.

Comber Setter or Second Hand of combing in a cotton mill. Position wanted by a man 24 years of age, single, American. Worked on fine and coarse cotton. Familiar with Whitin, Asa Lee, and Hetherington machines. Will not go to New Jersey, West, or Canada. Good references. 4018 Textile World Record.

Overseer of Cotton Carding. Position wanted as cotton carder by a Canadian and a hustler, age 42 and married, 27 years' experience in carding department, 13 years as overseer on English and American machinery. Is a good manager of help on colored or white work, fine or coarse numbers. 3719, Textile World Record.

Overseer of Carding. Position wanted by a man 43 years of age, married and American. Has worked on print cloth, cambrics, sheetings, etc., all white cotton. Is familiar with American and English carding machinery. First-class references. 3599, Textile World Record, Boston, Mass.

Overseer of Cotton Carding. Worked on all kinds of yarn. At present employed in a large mill, but will change for a better position. Familiar with all kinds of machinery. Will not go South. 36 years of age; French. 1991, Textile World Record.

Overseer of Carding and Frame Spinning. Worked on all kinds of stock, both high and low. 30 years of age; first-class recommendations. 1759, Textile World Record.

Overseer of Cotton Carding or assistant superintendent. Worked on all kinds of cotton, including cotton waste, Sea Island and down to sweepings. Familiar with all kinds of carding machinery; first-class recommendations; 28 years of age; married. 3323, Textile World Record.

Overseer of Carding. American; 26 years of age; worked in all positions in card room up to overseer. Understands nearly all makes of English and American machinery and has worked on white goods, both fine and coarse. 3346, Textile World Record.

Overseer of Cotton Carding. Position wanted by a man 57 years of age, married, American, has worked on all kinds of stock from 3/4 to 1 1/2 staple, all kinds of roving up to 18 hank, first class recommendations. 3713, Textile World Record.

COTTON SPINNERS.

Overseer of Ring Spinning, spooling and warping in a cotton mill. Position wanted by a man 42 years of age, married, American. Worked on prints, ginghams, hosiery yarns, denims, thread and lace yarns. Familiar with Whitin, Lowell, Howard & Bullard, Fales & Jenckes and Biddeford machines. Will not go West, South or Canada. Good references. 4030 Textile World Record.

Overseer of Ring Spinning, spooling and warping. Worked on all classes of goods, hosiery yarns, long and short staples from 8s up. Familiar with Sayles & Jenks, Mason, Lowell, Whiting and Saco & Pettee machinery. First-class references. 28 years of age; married. 3308, Textile World Record.

Overseer Ring Spinning, spooling and warping wishes a position. A married man, with good experience. Worked on sheetings, shirtings, jeans grain bags. 3152, Textile World Record.

Overseer of Cotton Spinning, 25 years of age, with experience on heavy and medium white and colored goods, 5s to 60s. Denims, chambrays, awnings, napped goods, fine shirtings, etc. Worked on all American ring spinning frames, Draper spoolers and warpers, also twisters and on ball or chain and beam. 3420, Textile World Record.

Overseer of Cotton Spinning. Englishman with experience on mule and frame spinning; worked on 3 1/2 to 200s filling, and on all kinds of novelty yarns, white or colored; accustomed to all machinery used in this work; wants a position in the States. 3437, Textile World Record.

Overseer of Mule and ring spinning. Position wanted by a man 35 years of age, married and American. Has worked on cotton yarns from 20s to 120s and is familiar with Parr, Asa Lels, Hetherington, Dobson & Barlow, and Mason new rope mules, and ring frames. Good references. 3516, Textile World Record, Boston, Mass.

MISCELLANEOUS

Overseer of Spinning or Twisting, or both, in a woolen mill. Position wanted by a man 41 years of age, married, American. Worked on wool, cotton and shoddy, also wool, cotton, worsted and silk twists, and a little novelty yarn. Familiar with D. & F. and J. & B. mules. Will not go West, South or Canada. Good references. 4015 Textile World Record.

Designer, Boss Weaver or assistant designer or superintendent in a woolen mill. Position wanted by a man 28 years of age, single, American. Worked on men's wear, worsteds and woolens, dress goods, piece dyed worsteds, cloakings, plain and fancy. Familiar with Crompton & Knowles and Crompton & Thayer looms. Will not go West, South or Canada. Good references. 4010 Textile World Record.

Bleacher and Dyer of cotton knit goods. Position wanted by a man 27 years of age, married, English. Has worked on web dyeing and bleaching, also garnet dye and bleaching, aniline black on hosiery. Will not go south. Good reference. 3763, Textile World Record, Boston.

Overseer of Cotton Carding. American; 34 years of age; worked on all classes of cotton goods and all machinery used in this work. Would accept a good second hand position. Prefers position in the East. 3393, Textile World Record.

Overseer of Carding in cotton mill. Position wanted by a man 32 years of age, married, American. Worked on waste, Upland, Bender, Peeler and Egyptian, both combed and carded, making roving for yarns from 3s to 100s. Familiar with all kinds of machines. Good references. 3969 Textile World Record.

Foreman of cotton finishing room. Eight years' practical experience on napping machines, starching and calendering. Worked in mills in Italy and America. Married. 3155, Textile World Record.

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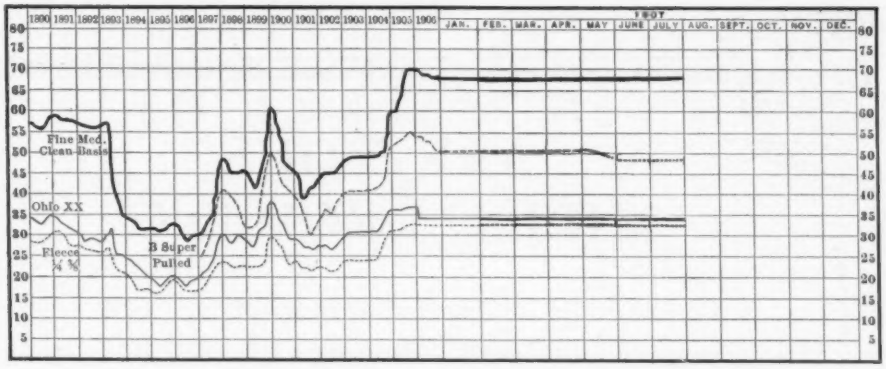


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

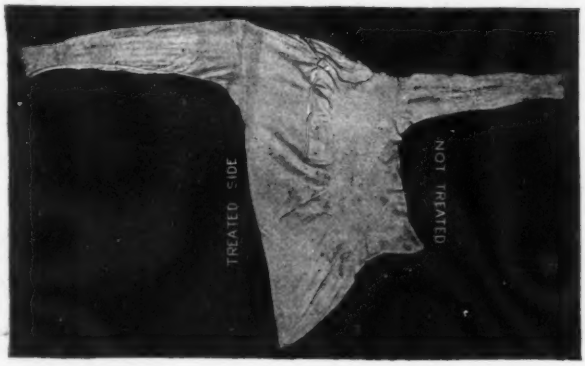
The Wool Market.

Wools suited for combing have been moderately active, while clothing wool has been neglected. The new clip is believed to be little if any larger than last year. This fact, along with the growing demand, puts lower prices out of the question for the present. Sales in the East during the past month have been restricted. There has, however, been a good deal of sampling going on, which promises to materialize soon in the form of large sales. While conditions are apparently with the seller, yet there is a distinctly conservative feeling among manufacturers. The approach of a presidential campaign leads them to operate cautiously.

Trade is good in the worsted branch, but the woolen mills have had a poor season and this has acted as an additional restraining influence. Taking all these things into consideration the trade generally believe that, while there is no prospect of any break in the market, yet an advance in prices is still more improbable. The mills will, it is said, for the most part follow a hand-to-mouth policy and let dealers carry any surplus stock. This will, however, be but a light load for the dealers, owing to the present disproportion between demand and supply.

*Georgia, Fort Valley. We have been advised that work was commenced on the new hosiery mill on July 15 and it is expected that the manufacture of yarn and hosiery will be begun by December 1st. The name of the new concern is the Fort Valley Yarn & Hosiery Mill. It is capitalized at $10,000.

TRADE IS DEMANDING NON-SHRINKABLE WOOL



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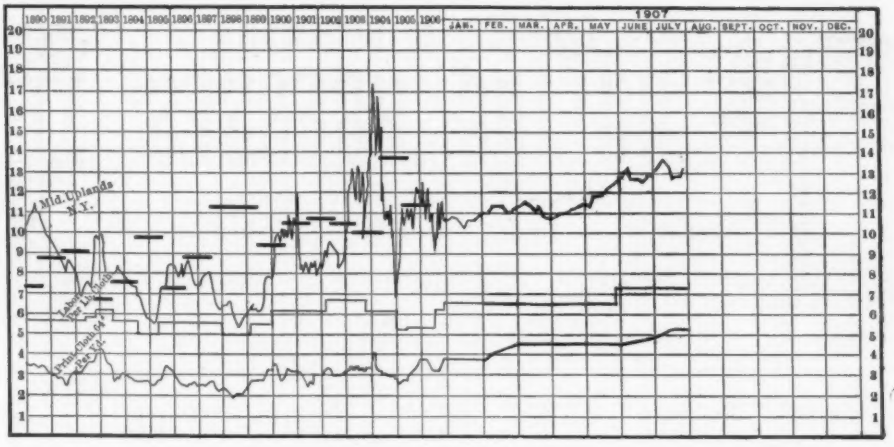
1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906
1907
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Mid. Uplands N.Y.
Lowest Middling N.Y.
Fair Cotton N.Y.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The Cotton Market.

Spot cotton has been strong and active, and high premiums are reported as being paid for desirable lots. Foreign spinners have been buying liberally, showing that present prices are not artificial, but represent the state of supply and demand. The short time movement in Lancashire has resulted from a disarrangement of production between spinners and weavers. Notwithstanding the great increase in spinning mills, there is a pronounced shortage of yarn, this resulting from the steady consumption by both English and Continental looms.

The demand for cloth continues good at high prices, but the weavers find that yarn prices have advanced in even greater proportion, and are as a result forced to stop their looms even when buyers are clamoring for goods. Thus the short time in English mills is but a phase of the local struggle between spinners and weavers, and has no direct reference to the supply of cotton and the demand for cotton goods.

The visible supply of cotton on July 26 is estimated by the Chronicle at 2,955,546 bales, as compared with 2,380,631 bales on corresponding date in 1906, 2,991,351 bales in 1905, and 1,594,667 bales in 1903. The same authority estimates the movement into sight from September 1 to July 26 for a series of years as follows:

1906-07	July 26	13,229,879
1905-06	July 27	10,834,325
1904-05	July 28	13,148,997
1903-04	July 29	10,015,464
1902-03	July 31	10,621,142
1901-02	Aug. 1	10,248,525

Pennsylvania, Philadelphia. J. Hey, 1729 Gillingham St., Frankford, who succeeded to the business of Callaghan & Hey, beamers of plain and fancy warps on two frames, is about to sell his machinery and go out of business.

South Carolina, Newberry. It is reported that another cotton mill is to be organized and that negotiations are being made for a site in the north western suburbs of the city. The capital stock of the new concern will probably be $400,000.

*Tennessee, Memphis. We have been advised by Devorkin Bros. that they are just contemplating starting in the textile business, so far only having purchased a site.

Tennessee, Rockwood. At the annual meeting of the Rockwood Mills, a committee was appointed to report on the advisability of increasing the capital stock and making additions to the buildings, in order to increase the output.

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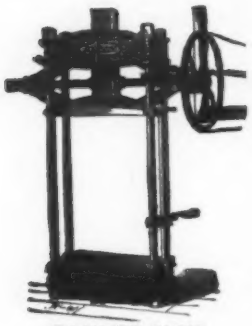

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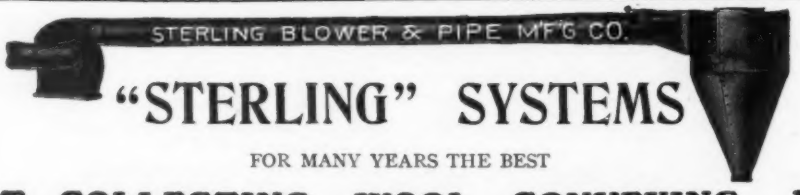

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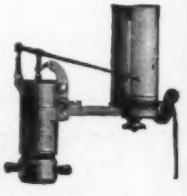

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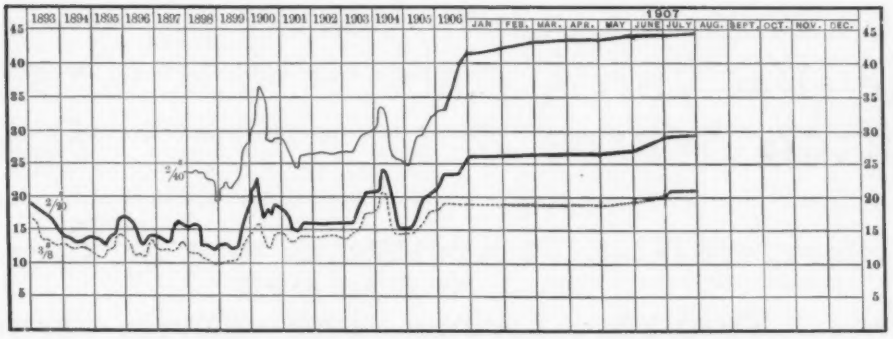
CROSBY STEAM GAGE AND VALVE CO.

Stores: BOSTON, NEW YORK, CHICAGO, LONDON

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE OF PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

Some disposition on the part of a few dealers to move stocks of yarn at prices slightly below quoted prices has given the market an appearance of weakness. Spinners, however, show no disposition to follow this example, and are steadily refusing all offers at cut rates. They are well supplied with orders, a fact that alone would warrant their firm position. Added to this, they say, is the high price of cotton, which shows no signs of returning to the old 10-cent level. The course of yarn prices has been largely separated from the influence of the raw cotton market, because of the shortage of help and of spinning machinery, and it would require a heavy decline in cotton to affect the market for yarn.

Yarn buyers have been shopping and trying to find weak spots. In the meantime the stock of yarn at the knitting and weaving mills has been shrinking steadily. Spinners believe that these conditions will bring the buyers to terms and that if the raw material remains where it is, large orders will soon be placed for yarn at full prices.

Eastern Cops.

6s	23¼
8s	23¾
10s	24¼
14s	25¼
16s	25¾
18s	26¼
20s	26¾
22s	27¼
24s	28¼
26s	29¼
30s	31½
34s	35
36s	37
40s	41

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	28
14s	28½
18s	30
20s	31
24s	33
26s	34
30s	38
36s	43
40s	49
45s	51
50s	56
55s	61
60s	66

Eastern Two-Ply Warps, Carded Peeler.

2/30s	39
2/36s	42
2/40s	47
2/45s	50
2/50s	57
2/60s	67

Egyptian Weaving Yarns.
Single Skeins Combed.

30s	50
36s	51
40s	53
45s	56
50s	60
55s	63
60s	70
70s	77

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

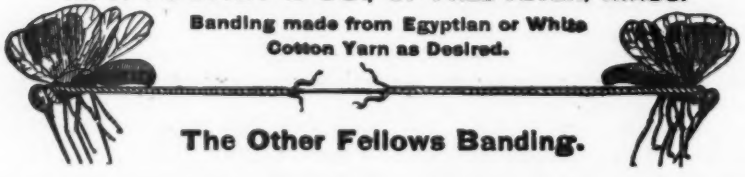
DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

M. J. TOOHEY & CO., OF FALL RIVER, MASS.

Banding made from Egyptian or White Cotton Yarn as Desired.



The Other Fellows Banding.

MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

COTTON WARPS

HOUSATONIC, MASS.

4s to 60s.

FRANK A. TIERNEY,

TOPS, NOILS, ROVINGS, YARNS

Sole Selling Agent

Atlantic Fibre Co.

LUZONNE SILK YARNS.

LUZONNE LINEN YARNS.

260 West Broadway, New York, N. Y.

Mercerized and Plain

Skein, Warps, Cones, Cops, Tubes

COTTON YARNS

426 and 428 Market St., Phila.

Theo. H. Strouse & Co.

The Philadelphia Market.

While business during the past few weeks on cotton yarn has not been as brisk as we have been accustomed to having it, there has been no willingness on part of spinners to cut prices. Most mills seem to be well enough supplied with orders to be in position to stand for their idea of prices. Buyers have shown a tendency to delay deliveries, and we believe that stocks of yarn are rather larger now than for some months past.

There is a great deal of uncertainty as to the course that cotton will take during the fall. We believe that the demand for good cotton will be so strong that prices will rule very high. There were so many mills unable to get a sufficient supply of good cotton this past year that they will be induced by their experience to lay in an extra supply of the first available cotton in their grades.

The cold weather during the spring had a marked effect on the repeat order business with manufacturers of light weight goods of all kinds, and we think is largely responsible for the dullness among manufacturers during the past month. We quote as follows:

Southern frame spun cones:—

7s and coarser	22½
8s and 9s	22¾
10s	23
12s	23½
14s	24
16s	24½
18s	25
20s	25½
22s	27
24s	27½
26s	28½
30s	31
40s	44
50s	56

Southern high grade mule yarn:—

Cones.

10s	24½-25
12s	25-25½
14s	25¾-26
16s	27
18s	27½
20s and 22s	28-29
24s	29½

Southern frame yarn, lower grades:—

6s and 8s	22
10s	22½

Eastern cones (high grade quality):—

10s	26
12s	26½
14s	27
16s	27¾
18s	28¾
20s and 22s	29¼-29¾

JAMES E. MITCHELL CO., COMMISSION MERCHANTS.
Cotton Yarns
AND COTTON CLOTHS.
122-124 Chestnut Street, PHILADELPHIA, PA.
73 Leonard Street, NEW YORK.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns
345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
206 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
Dry Goods Commission Merchants,
COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
DEP'T. FRED'K VIETOR & ACHELIS
COTTON YARNS
66-72 LEONARD STREET - - NEW YORK
J. R. TOLAR
J. H. HART
J. R. TOLAR, JR.
P. G. HART
TOLAR & HART
Cotton Yarns and Cotton
TEXTILE BUILDING
Members of New York Cotton Exchange
66-72 LEONARD ST. NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

E. D. LORIMER & CO.
COTTON YARNS } ALL NUMBERS
MERCERIZED YARNS } FOR ALL PURPOSES
346 BROADWAY, NEW YORK.

LUDWIG LITTAUER,
Successor to MOELLER & LITTAUER.
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
109 GREENE ST., NEW YORK.

G. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS

Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING CO.

Main Office and Mills at Pawtucket, Rhode Island.

Carded and Combed Cotton Yarns for Weavers and Knitters.

Double and Twist Yarns for Woolen Trade.

Philadelphia Office, Mariner and Merchant Building, Third and Chestnut Streets.

Wm. Chalmers & Co.

(Incorporated)

Imported and Domestic Cotton Yarns.

Turkey Red Yarns a specialty.

Correspondence solicited.

43 Leonard St. - - NEW YORK.

GRANT YARN CO.,

COMBED AND CARDED COTTON.

YARNS 40's and above. AND

FITCHBURG, MASS. **WARPS**

Scranton Yarn Finishing Co.

SCRANTON, PA.

Dyers of Skein Silk, Pure Dye and Weighted.

Mercerizers, Dyers and Coners.

Ballou Yarn Co.

PROVIDENCE. R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

THE RAVINE MILLS CO.

MANUFACTURERS OF

COTTON WARPS

In White and Colors on Beams and Jackspools

Specialty of Fast Black Twist on Jackspools.

VERNON, CONN.

C. MOORE & CO.,

Manufacturers of

TWINES, THREADS AND YARNS

Jacquard Harness Twines of all kinds on hand and made to order.

S. W. Cor. Fifth and Market Sts., Phila.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.

Established 1860—Incorporated 1893.

THE S. BLAISDELL, JR., CO.,

COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

CHICOPEE, MASS.

Cotton Waste Purchased on Yearly Contract from Mills.

EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

WATCHMAN'S CLOCK, LATEST IMPROVED

Portable and Electric.

Controls Night Watchman.

Allowance made for old clocks.

T. NANZ & CO., 127 Duane St., N.Y.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

Skein yarn (mostly Southern):—

4s and 8s soft	20½
10s and 12s	21-21½
14s to 20s	22-24
22s	24½
14/2	23
16/2	24
20/2	26½
30/2	32
40/2	43
16/3 slack	23½
12/3 slack	22
8/3 carpet	20
8/3 slack	20
9/4 slack	20

Warps (Southern):—

10s to 12s	21½-22
14s	22½
16s	23
20s to 22s	24-24½
26s	27
14/2	24
16/2	25
20/2	26½
24/2	29
30/2	32
40/2	44-45

Mixed colored yarns (mock twist, half colors):—

6s to 10s	23-23½
12s to 14s	24-25
16s to 18s	26-27

Mock Egyptian, 2c. advance over white.

Egyptian, 7 to 8c. above best quality white.

Pennsylvania, Philadelphia. A petition has been filed by some of the creditors of Alexander Crow, Jr., to have him adjudged an involuntary bankrupt. Mr. Crow denies the insolvency, and in the meantime it is expected that the creditors will petition for a receiver to take charge of the mills.

Pennsylvania, Philadelphia. The business and equipment of Sharp Bros., operating five looms on bar towels, scrub cloths and machinery wipers, has been purchased by Harry Crowther, manufacturer of wiping cloths at 2046 North Palethorp St., to which address the machinery has been removed.

Pennsylvania, Philadelphia. One of the prominent bleachers of cotton piece goods now located in the Kensington district and whose business has grown to such an extent that larger quarters must be secured, is negotiating for the purchase of the Crankshaw Mills at Elizabeth and Unity Sts., Frankford. It is proposed to re-equip the plant for bleaching.

Pennsylvania, Philadelphia. R. J. Prince, who has been the superintendent for W. A. Jenks at 10th and Diamond Sts., where he manufactured cotton and worsted men's wear and dress goods on 56 looms, is now the sole owner of the plant, having recently purchased the business from Mr. Jenks. The business will be continued the same as heretofore and at the same address, where he is very busy.

Established 1863 *Incorporated 1893*

W. Warren Thread Works

Makers of High Grade

SPOOL COTTON

of every description for the manufacturing trades

Mills: Westfield, Mass.

LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin Street, NEW YORK.

Flax, Hemp and Jute Line and Tow Yarns,
For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines,
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS
95 Worth Street, NEW YORK
Practical Manufacturers of
YARNS, THREADS, TWINES, CORDS, ROPE
AND MILL SUPPLIES
Anything in the line you cannot get anywhere else apply to us.

ATLANTIC FIBRE CO.

Luzonne Silk
Luzonne Linen

Write for Samples and Quotations.

Room 203 Wool Exchange Bldg.
260 West Broadway,
NEW YORK.

Box Shook

and

Lumber

THE CONNECTICUT BOX CO.
New Haven, Conn.

Pocasset Worsted Company,

WORSTED YARNS

IN THE GRAY.

Mills at Thornton, R. I.

Office 100 Boylston St., Boston, Mass.

French System. Bradford System.

B. F. BOYER CO.,

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. CAMDEN, N. J.

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Bradford System French System

STEPHENSON & CO.

Worsted and Woolen Yarns

240 Chestnut Street

PHILADELPHIA.

WORSTED YARNS

RICHARD CAMPION.

SELLING AGENT FOR

Bristol Worsted Mills,

Highland Worsted Mills.

The French Worsted Co.

300 Chestnut Street,

PHILADELPHIA, PA.

THE MALCOLM MILLS CO.,

MANUFACTURERS OF

FANCY YARNS and POLISHED THREADS.

Offices: 229 Chestnut St., Philadelphia.

Mills: Frankford, Pa.

KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

Spool Tapes a Specialty.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

F. W. MAURER & SONS CO.

MANUFACTURERS OF

TAPES, BINDINGS, NARROW FABRICS AND EDGINGS FOR NOVELTY CURTAINS

Office, 528 Cherry St. Factories, 529 & 531 Arch St. and 524 Cherry St., and Germantown Ave. & Bristol St.

PHILADELPHIA

HOFFMAN, DeWITT & McDONOUGH CO.,

Diamond Stay Bindings

TRADE MARK

Manufacturers of

Tapes, Webbing and Bindings.

COTTMAN and G STS., PHILADELPHIA

Ryer's Station, P. & R. R. R.

Bell Telephone, 203 Cheltenham.

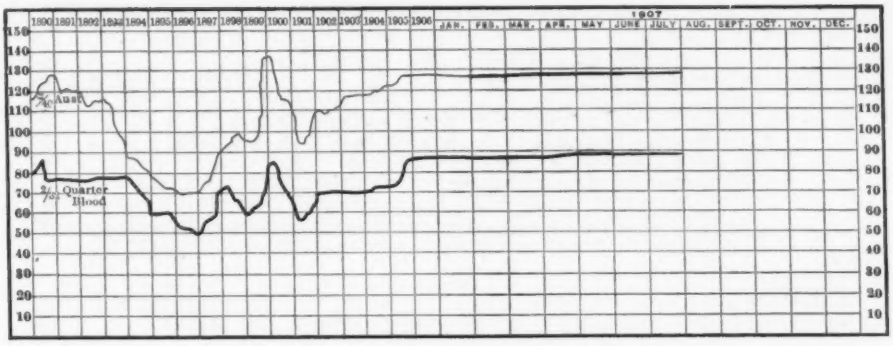


CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

The Woolen and Worsted Yarn Market.

These markets have remained stationary with prices firm and trade quiet. Some spinners claim to have a large number of orders on hand; others are hustling for business. The knitters are very busy, but are not placing large orders; while the weaving trade, which has just put its samples for spring and summer goods on the market, will not be able to place their orders for yarns until they find out how their goods have been received by the trade.

Jobbers of men's wear in this vicinity report an unusual demand for fancy flannels and unfinished worsteds for the spring and summer and an increased demand for woolens, such as unfinished cassimeres and cheviots, for the fall of 1908. They also state that while the prices for fall goods have been firm they have been compelled to pay an increase on duplicate orders.

It can be plainly seen that the manufacturers, in all lines of textiles, are of the opinion that it is better for them to buy in small quantities and let the spinner carry the stock and take the chances. The outlook, however, is exceedingly bright and there is no doubt that when the business does come in it will come in large volume.

Our quotations on worsted yarns are as follows:

Bradford Yarn.

*2/12 to 2/16 low common	72½-75
2/12 to 2/20 1/4 blood	80-83
2/32 1/4 blood	85-87½
2/26 3/8 blood	92½-95
2/36 3/8 blood	97½-1.00
2/40 delaine	1.20-1.22½
2/40 Australian	1.30-1.32½
2/60 Australian	1.50-1.52½
2/28 luster	85-90
2/36 luster	95-100

French Spun Yarn.

1/20 1/4 blood	85-87½
1/20 high 3/8 blood	1.00-1.02½
1/20 3/8 blood	1.05-1.07½
1/30 3/8 blood	1.07½-1.10
1/20 1/2 blood	1.10-1.12½
1/40 1/2 blood	1.15-1.17½
1/40 Australian	1.32½-1.35
1/60 fine Australian	1.40-1.45

*Illinois, Pinckneyville. Operations have been started in the knitting plant established here by J. H. Rickman & Co., making misses' seamless ribbed hose and men's fine gauge half hose. Plant is equipped with 60 knitters, 33 ribbers, and 22 loopers. Product sold through Sutton & Co., N. Y., is finished by the Chester Knitting Mills (Chester, Ill.), in which the above company is also interested.

Maryland, Cockeysville. A knitting mill is being started by C. N. Parrish to manufacture ladies' fine hosery. Orders have been placed for Acme knitters and manufacturing will be started as soon as the machinery can be installed.

*Massachusetts, Boston. The Suffolk Hosiery Mills, recently reported incorporated with view to erecting a knitting plant, have options on two different plants, one of which will be purchased and the machinery removed to another locality. They have practically decided to establish the mill in the South, as good inducements have been offered. They will manufacture twenty-five cent half hose and boys' and girls' stockings, also the same grade in ladies' goods.

*Texas, Fort Worth. We have been advised by the Fort Worth Board of Trade that there has been considerable talk about establishing a cotton mill at that place, and Mr. Davidson and other members of the organization have offered to subscribe to $50,000 worth of stock in such a mill. Nothing further has been done concerning the project.

*Texas, Houston. We have been advised by the Board of Trade that they are simply endeavoring to organize a company of local capitalists to erect a cotton mill at cost of about $500,000. They are also soliciting outside capital.

CHENEY BROTHERS

Silk Manufacturers. So. Manchester, Conn.

Trams, Organzine and Spun Silks in the hank, or on spools and cones for woolen manufacturers.

Silks for electrical uses, insulation and special purposes made to order.

Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Satins, Linings, Printed Pongees, Foulards and Decorative Silks; Upholstery Goods, Ribbons, Sashes, Plushes and Velvets.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 210 Monroe St.—Boston Office, 78 Chauncy St.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

Write for Prices and Samples.

George W. Chapin, 229-231 Church St., Philadelphia.

COMB BOXES **NON-FLUID OILS**

run from 6 to 8 weeks on one filling of **A-00** Non-Fluid Oil as against 3 to 6 *days* with fluid oil. This saving alone should be an inducement to use Non-Fluid Oils and when to their economy is added their absolute *cleanliness* it should at least be worth your while to make a thorough and exhaustive test of our claims. You can do this without expense. We will send free sample by paid express.

NEW YORK & NEW JERSEY LUBRICANT COMPANY
Dept H. 14-16 Church Street, New York.

*North Carolina, Fayetteville. We have been advised that the plant of the Holt-Williamson Mfg. Company which was destroyed by fire will be rebuilt. The equipment has been provided for.

*Pennsylvania, Hazelton. We have learned that the bleaching establishment which it is reported will move here is the Hamburg Bleach Works of Hamburg, Pa., A. J. Kummerer, proprietor.

Pennsylvania, Jersey Shore. It is reported that Thomas C. Delaney, superintendent of the Danville Knitting Mills Company of Danville, Pa., is to start a knitting mill at this place.

Pennsylvania, Philadelphia. The Aberfoyle Mills Corporation has been incorporated with a capital stock of $1,600,000. The incorporators are Henry A. McCarthy and W. Evans Smith of Philadelphia and Arthur Perkins of Hartford.

Pennsylvania, Philadelphia. Messrs. Isaac Berlizheimer, David T. Berlizheimer, Leopold Moritz and Elias Frank, have applied for a charter for the Standard Hosiery Company. The company, which is located at 1310-1320 N. Lawrence St., manufactures seamless cotton hosiery on 500 knitting machines, selling the product direct from the mill and their offices located in different parts of the country.

Pennsylvania, Philadelphia. The E. G. Chester Dyeing Co., which is controlled by Rosenau & Loeb, manufacturers of seamless cotton hosiery at Mascher and Oxford Sts., and the E. G. Chester Hosiery Co., Cedar and Huntingdon Sts., is to be sold owing to a disagreement among its stockholders. The company claims to have offers from several parties and expect to close within a few days. The plant is located at Trenton and Susquehanna Avenues.

*Pennsylvania, Philadelphia. Confirming a recent report made by us, Messrs. Lewis E. Upham, Myron L. Upham and Frederick A. Upham have filed an application for a charter for Upham Bros. & Co., Inc., with a paid in capital of $25,000. They are now located in their new quarters at Hancock and Oxford Sts., having removed from their old location at 241-43-45 Arch St. They are manufacturers of glazed yarns, sewing cottons and mercerized yarns, and coners of all kinds of yarns for the trade.

WILLIAM B. CHARLES,
Cotton Yarns,
Cotton Cloth,
Silesia, Sateens,
For the Underwear Trade.
AMSTERDAM, N. Y.
Boston Office, 200 Summer St.

EDWIN F. SCHOFIELD
ALL GRADES
PULLED AND FLEECE WOOLS
FOREIGN NOILS, CARPET WOOLS.
COTTON WASTE
New York Office 256 Church Street
Mariner and Merchant Building,
3d and Chestnut Streets, Philadelphia, Pa.

JOSEPH M. ADAMS CO.
WOOLEN YARNS,
Carpet Backing and Rug Yarns a Specialty.
ARCOLA MILLS,
Main St., foot of Centre St., Manayunk, Philadelphia.

Knitting and Weaving
YARNS.
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.
EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

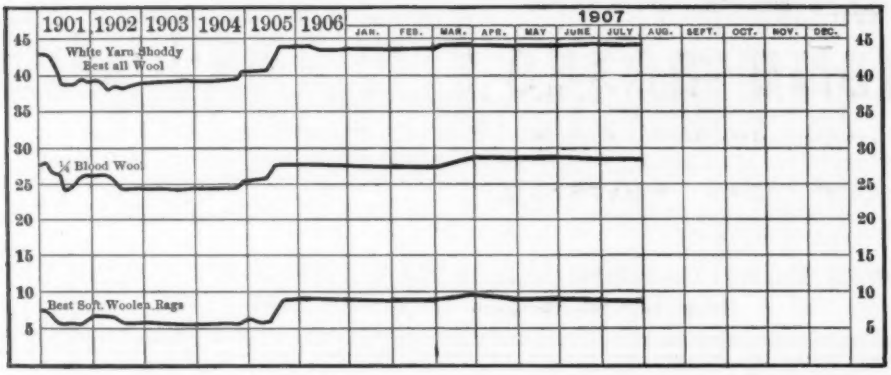


CHART SHOWING RANGE OF PRICES OF SHODDY, RAGS AND NOIL.

The Rag and Shoddy Market.

An appearance of strength in this market has resulted from the demand for a few grades, such as worsted softs and black stock. The supply of such material is limited, however, and as a result dealers have had calls for material they did not have, while the stock they could supply in large quantities has been neglected. Shoddy and waste have been in the same condition. The mills are using a smaller proportion of wool shoddy than in previous years, because of the neglect of cheviots and cassimeres, and the increasing use of cotton.

Such are the conditions with which waste and shoddy dealers have to deal. An improvement is expected when fashion changes. There are some indications of a return of the cheviot to favor, but nothing has yet occurred in this direction to interrupt the monotonous dullness of the rag and shoddy markets. We quote as follows:

SHODDIES AND EXTRACTS.

White yarn, best all wool	40
White knit, all wool, best fine	35-40
White knit, No. 2	28-30
Light yarn, extra fine	25-28
New pure indigo blue	24

Merino.

Fine light, all wool	26-28
Medium light, all wool	18-20
Fine black, all wool	26-28
Fine dark, all wool, best grade	22-25
Medium dark, all wool, No. 2	15-17
Red knit stock, strictly all wool	22-24
Red flannel, all wool	22-24
Dark blue for hosiery, strictly all wool, No. 1	20-22
Dark blue for hosiery, not all wool, No. 2	16-18

WOOLEN RAGS.

Fine merchant tailors	10-11
Choice light colors	13-14
Browns	12-13
Blacks	9½-10
Fine blues, plain	9-10
Fine dark	11-12½
Medium dark	7-8

Worsteds.

Blue	16-18
Black	21-23

Serges.

New black	16-18
New blue	15-17

Flannels.

New scarlet	18-19
New blue	15-16
Cloakings	3-3½

SOFTS AND KNIT STOCK.

Soft woolens, best	7-7¼
Old white flannels	16-19
Old red flannels	13¼-14
Old blue flannels	6-7
Old plaids	4½-5
White stockings	24-25
White hood stock	22-23
Clear hoods	10-11
Blue stockings	9¼
Fancy stockings, No. 1	9½
Gray stockings	11-12
Black stockings	9-10
Knit stock comforters	7-8
Red knit	12-12½
Light gray knit	9-10
New light fancies	10
New fancies	10¼-11¼

Merinos.

Light, fine	14-15
Light, coarse	7-7½
Fine, dark	13-13½
Coarse, dark	5-5½

WILLIAM B. CHARLES,
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Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white.
Lowell Crayon Co., Original Manufacturers **Lowell, Mass.**
Trade Mark on every box.

Blue	11-12
Black	13-14

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Shear, fine white, all wool	9-11
Fine indigo blue, all wool	8-9
Fine black and blue, all wool	6½-7
Fine dark, all wool	4½-5
Gig, fine, all wool	1¼-4
No. 1 black, all wool cut	6-8

COTTON WASTE.

No. 1 Spinners	11-11½
No. 1 Machine Cop	
No. 2 Machine Cop	
No. 1 Cop	8¼
No. 1 Card	8-10
No. 2 Card	8-9
No. 1 Oily Card	6
No. 2 Oily Card	4
Peeler Combing	12½-13
Egyptian Combing	11½-12
No. 1 Linters	4½
No. 2 Linters	3½-3¾
Woven White Clips	6
Woven Colored Clips	2-2½

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2⅛-2.35
Citric, domestic	52-52½
Oxalic	8¾-9
Sulphuric, 60 deg., 100 lbs.	1.00-1.50
Muriatic, 18 deg.	1.10-1.75
Tartaric crystals	28¾-29¼

Miscellaneous Chemicals.

Acetate of lime, gray, 100 lbs.	2.50-2.55
Alum, lump	1.75-1.80
ground	1.85-1.90
powdered	3.00-4.00
Aqua ammonia, 16 deg.	3¾-4
Ammoniac, sal., gray	6-6⅛
Borax, bbls.	7½-8½
Brimstone, crude, foreign ton	22.50
Copperas	55-65
Cream tartar, crystals	23¼-23¾
Fuller's earth, powdered, 100 lbs.	80-85
Glauber's salt	45-55
Potash, chlorate, crystals	8¾-9½
powdered	9-9¾
carbonate	4⅛-4½
Soda, bicarbonate, English	3
American	1.30-1.70
Soda, caustic, domestic, 60 per cent.	1.85-1.90
Sal. American	70-80
Sulphate, alumina	1½-1¾
Vitriol, blue	7-7½

Dyestuffs.

Acetate of soda	4¼-4½
Acid, picric, best crystals	22-28
tannic, commercial	34-38
Albumen, egg	59-75
blood	22-30
Alizarine, red	15½-16½

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Organized 1853. MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $3,000,000.

ASSETS January 1st, 1906	$20,839,174
LIABILITIES (Including Capital)	13,430,818
NET SURPLUS OVER ALL LIABILITIES	7,408,355
Surplus as regards Policy-holders	10,408,355
Losses Paid Since Organization Over	105,000,000

Note amount of net surplus after providing for all San Francisco losses.

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IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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FREDERICK C. BUSWELL, Vice-Pres. CHARLES L. TYNER, Secretary.
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Aniline, oil	11¼-12
salt crystals	9⅞-10½
Antimony salt, 65 per cent.	22½-25½
Bichromate of potash, American	8⅝-9
Bichromate of soda	7⅛-7½
Bisulphite of soda	80-1⅜
Cutch, mat	4¾-7
boxes	5-7
Dextrine, imported potato	5¾-7
corn	2.75-2.90
Divi-divi, ton	47.50-55.00
Flavine	23-40
Fustic, stick, ton	17.00-20.00
young root	45.00
Gambier	4¼-4¾
Hypo. of soda, Am. bbls. cwt.	1.40-1.55
Indigo, Bengal, low grade	55-65
medium	62½-75
high grade	77½-90
Kurpahs	50-60
Gautemala	35-70
Manila	45-50
Madras	45-50
J. (Synthetic)	18-20
Indigotine	95-1.80
Logwood, stick, ton	18.00-22.00
roots	16.00-19.00
Madder, Dutch	13½-15
Muriate of tin, 36 degrees	9-9¼
52 degrees	15-15¼
Nitrate of iron, commercial	1⅜-1½
Nutgalls, blue Aleppo	17-18
Persian berries	
Phosphate of soda	1.80-2¼
Prussiate of potash, yellow	16¼-16½
Quercitron, ton	25.00-30.00
Starch, corn, pearl, bbls.	2.35
corn, pearl, bags	2.20-2.40
potato	3½-4
rice	6½-7
wheat	4¾-5¼
Stannate of soda	9¾-10
Sumac, Sicily, No. 1, ton	82.50-85.00
Sicily, No. 2, ton	69.00-71.00
Tapioca flour	2½-4
Tin crystals	25⅛-29
Turmeric, Madras	6½-7
Zinc dust	6-6½

Pennsylvania, Philadelphia. Ballinger & Perot have completed plans and are inviting estimates for the erection of two new buildings to be used as additions to the Columbia Mills located on 6th St., Columbia Ave. and Randolph St., which is used for tenement purposes, several large textile manufacturers being located in the building. One of the buildings will measure 32 by 35 feet, and will be four stories high with a basement. The other will measure 48 by 76 feet and will be one story and basement. Both structures will be of brick with slag roofs and will have columns, floors and roofs of slow burning wood construction.

Tennessee, Rockwood. It is reported that a company of local business men is being formed to establish another hosiery mill. Options have been secured on buildings suitable for hosiery manufacturing.

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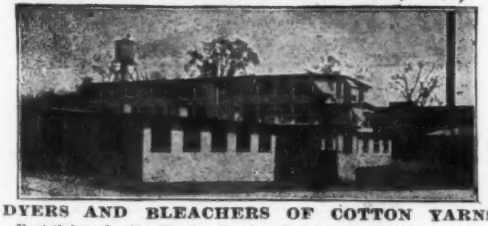

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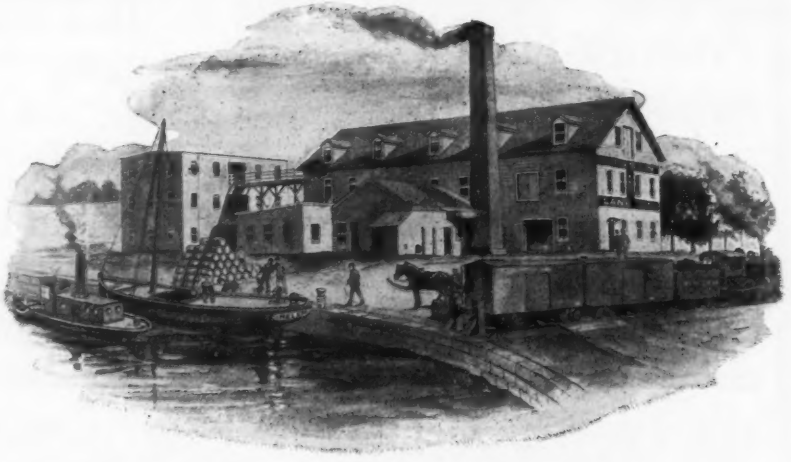

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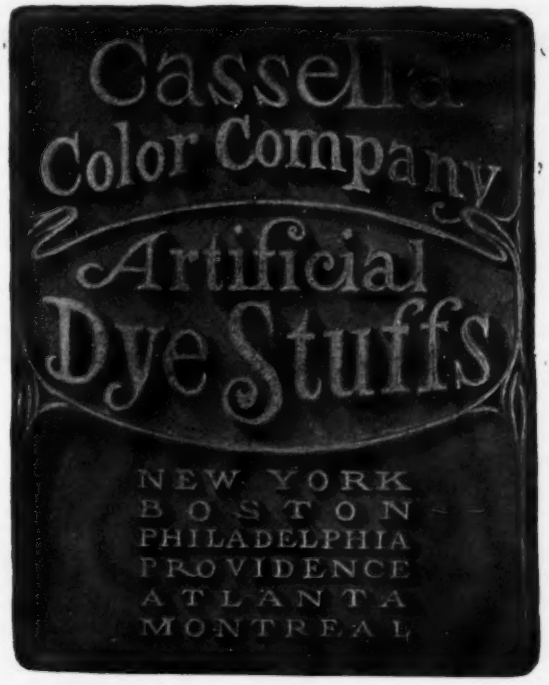

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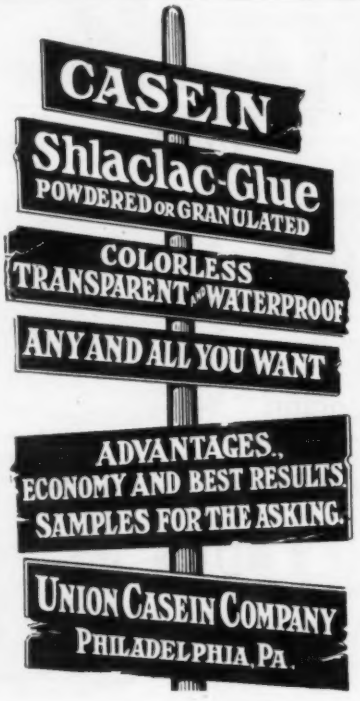

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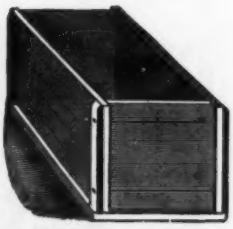

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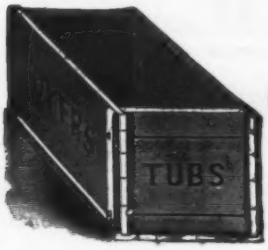

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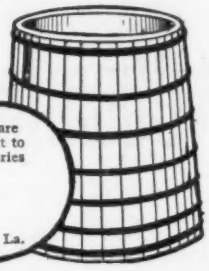

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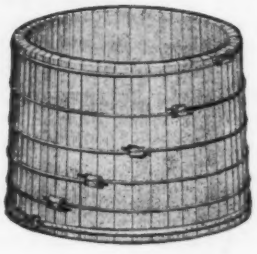

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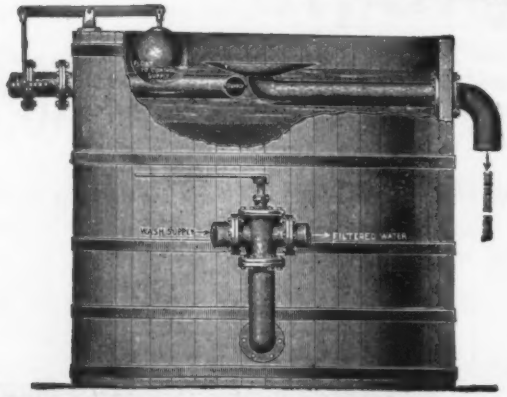

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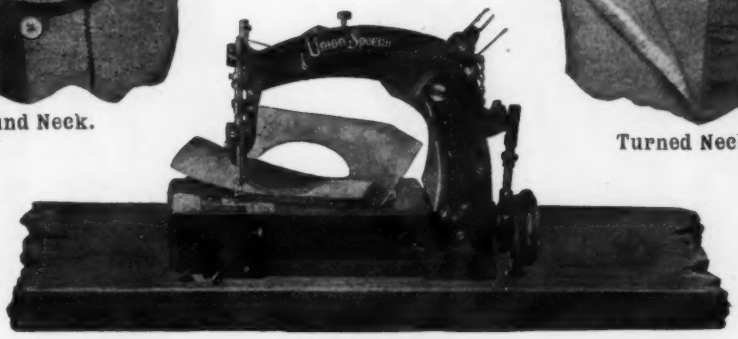

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STYLE 6900 G.

SPECIALLY DESIGNED FOR "NECKING" KNIT UNDERSHIRTS.

The one machine may be used to make either turned or bound necks.

(Both operations on this machine, patent applied for.)

Most Durable Sewing Mechanism Ever Constructed.

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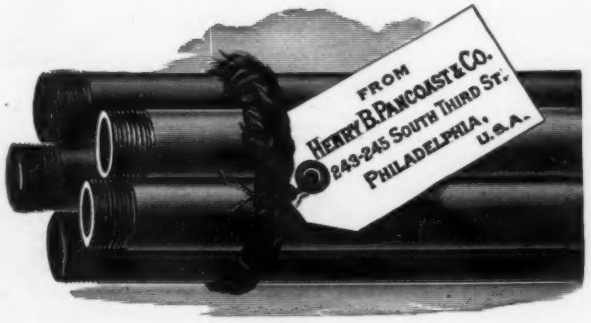

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Iron and Brass Fittings, Valves, Etc.
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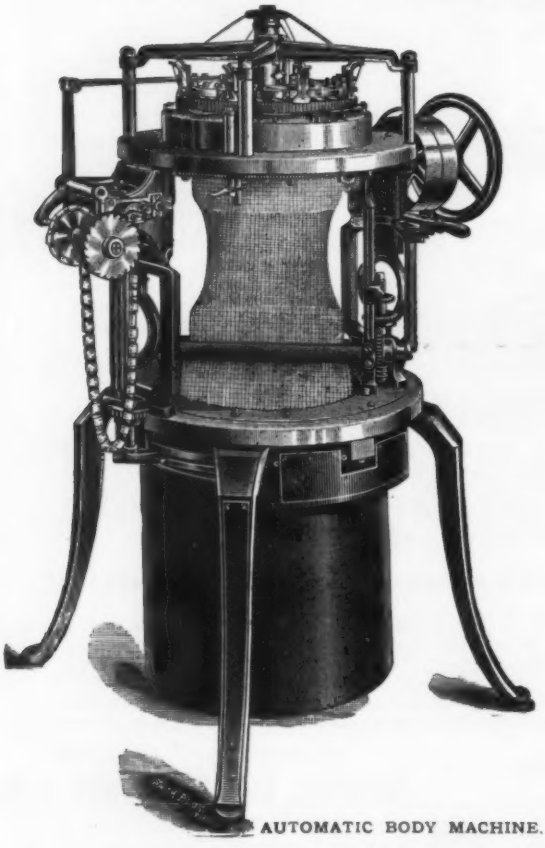
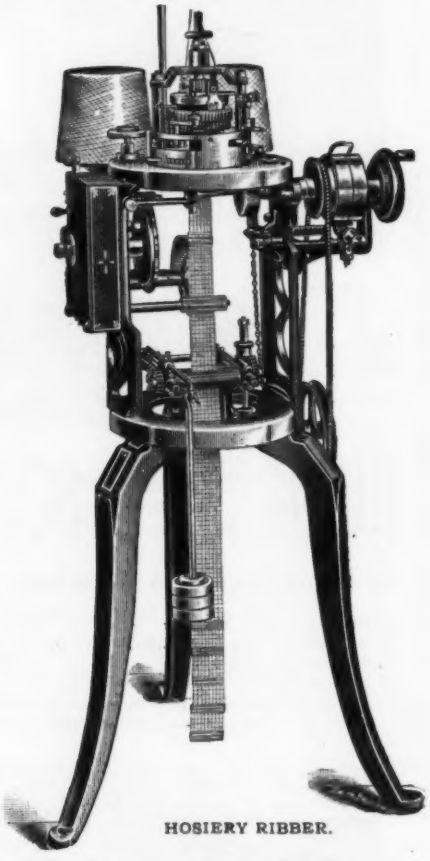
CIRCULAR RIB KNITTING MACHINERY

AUTOMATIC AND PLAIN

For all classes of Ribbed Hosiery and Underwear, Combination Suits, Sweaters, etc.



AUTOMATIC BODY MACHINE.



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ESTABLISHED REPUTATION FOR LARGEST PRODUCTION,
BEST QUALITY FABRIC, DURABILITY, ECONOMY OF OPERATION.

Full Particulars, Description and Samples Furnished upon Application to the

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NORRISTOWN, PENNA.

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Sustained by the **Courts**
In Our Suit Against a Competitor
for INFRINGEMENT of

One of Our Patented Designs

In a decision rendered February 16, 1907, by the United States Circuit Court, holding our Design Patent No. 36,895 valid and infringed and awarding a perpetual injunction,

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NEW LINE for 1907 and 1908 for trimming Ladies Underwear **now being shown.**

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(We caution competitors from infringing on our patented designs.)

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New Full Automatic Knitter

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KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

NYE & TREDICK CO.

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. : ; :

Correct Construction. Excellence and Durability.

LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
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The Most Productive, Strongest and Best

Full Fashioned Hosiery Machines

System **G. Hilscher, Chemnitz, Saxony,**

Can Be Delivered in Short Time and Fully Guaranteed
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THE GROSSER KNITTING MACHINE CO.

WOOL EXCHANGE
Rooms 400-421-423

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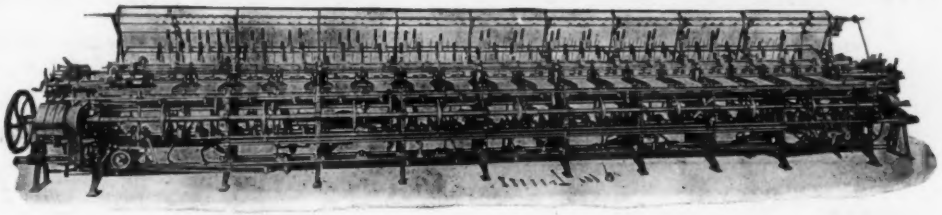
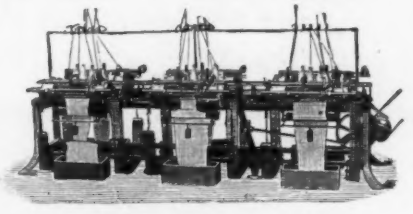


18 Section "COTTON HILSCHER" Machine for Full Fashioned Silk Hosiery

Gold Medal, Paris, 1900 — Numerous Patents Covering Special Improvements

All Special Machines For Any Article That Is Knit



GROSSER Flat Knitting Machines
For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.

FRENCH FRAMES
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special à-jour (open work) Fabrics, etc.

RASHEL MACHINES [Double Rib Warp Knitting Machines.]
For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

SPOOLERS, Parafiners, Finishing Machines for the knitting business.

Exclusive Agency for the Famous

Julius Koehler DIAMENT OVERSEAMERS, indispensable for all full fashioned articles, Hosiery, Gloves, Jersey Sweaters, Sporting Goods, etc.

LOOPERS Double thread Lock stitch, self-cutting and cleaning attachment. Reliable money saver.

FRITZ ZACKE LATCH NEEDLES, for any purpose in the knitting line, patented rivets.

Samples, Specifications, Prices, etc., upon application.

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ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY.

2 Bruce band folder and cutters.
1 Weston & Dennis Press, 32x40 in., 15 Hollow Plates.
Lot hosiery stamps, boards, etc.
38 Beattie & Hepworth & Abel loopers.
6 Hosiery presses (lever).
114 Lamb and Grosser sweater machines.
200 Ribbed underwear machines, various sizes.
50 Brinton & Co. ¼ aut. knitters, sizes.
30 Union Special machines, various styles.
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2 paper cutters.
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140-Ribbed shirt machine cylinders and dials, all sizes, cuts and makes.
2 Grosser Jacquard machines for gloves.
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1 Crawford Hollow Plate Press.
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1 Crane 18 in. Diam. 16 needles per in., 2 feeds with collarette attachment.
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2 Fireproof Safes.
5 Cop and Skein Winders.
1 Pownall Screw Press 34 x 52 in.
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WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY.
We are always in the market to buy good second-hand Knitting and Finishing Machinery.

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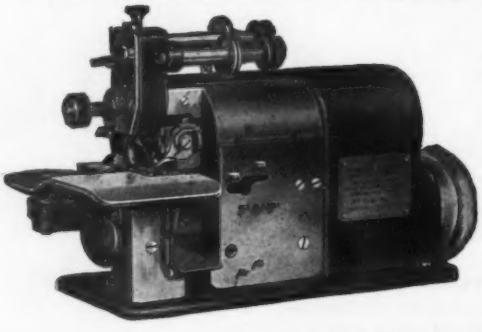
FAST
DURABLE
Light Running

High Speed Overseaming, Overedging and Scallop Stitch Machines are



OUR NEW STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets. STYLE 17 or 22 for Bed Blankets. STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

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Full Fashioned Hosiery Machines

For the manufacture of hosiery in cotton, lisle or silk in all guages, from 14 to 32 needles (spring beard) to the inch, from 12 to 24 sections, built by

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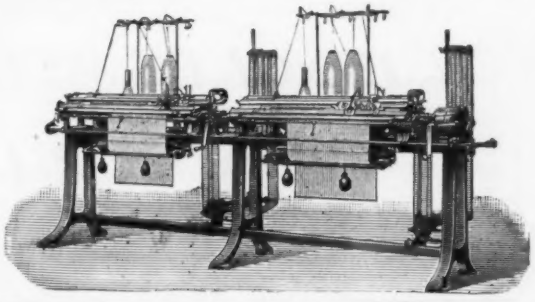
Also Latch Needle Machines, hand or power motion, built by

Seyfert & Donner

for the manufacture of sweaters, cardigan jackets, ladies' blouses, vests, gloves, etc. The picture represents a full automatic power machine with independent heads.



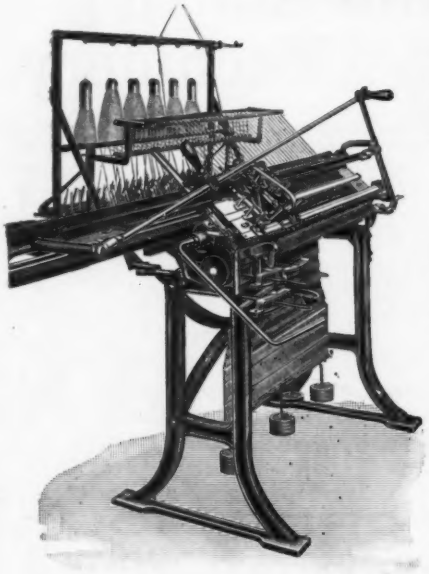
Catalog on application.

Otto Walther,

507 Bourse, PHILADELPHIA.

WALTER & CO., Limited

Mühlhausen i/Thür, Germany.



SPECIAL MANUFACTURERS OF

Knitting and Winding Machines

for hand and power driving, of best quality and perfect construction.

Specialty: Jacquard Machines

for hand and power driving for manufacturing of sweaters and every possible fancy article of that nature.

PRICE LIST AND SAMPLE ON APPLICATION

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The Invincible

Full Automatic.

"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

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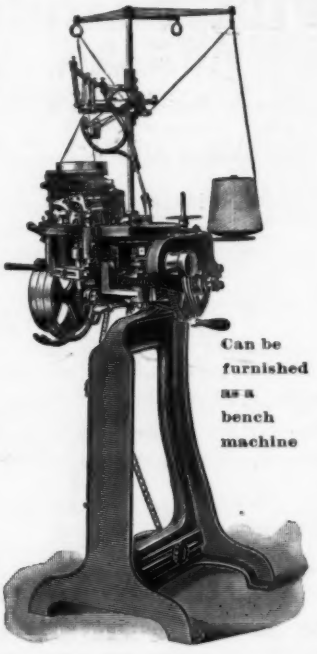
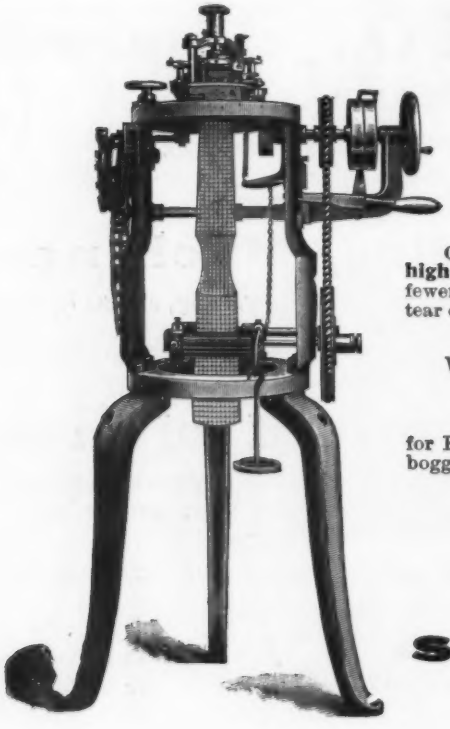


Can be furnished as a bench machine



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Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

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Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

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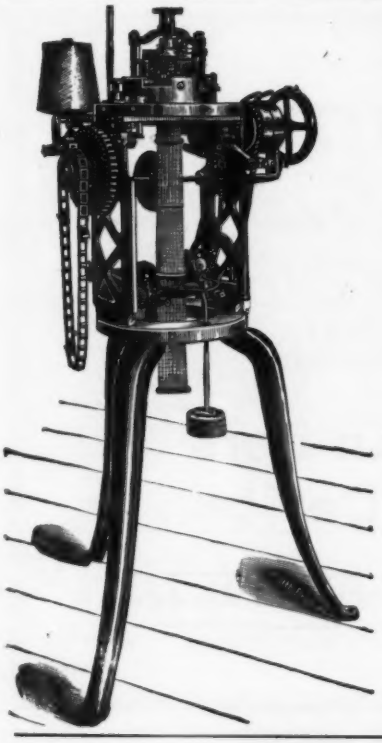

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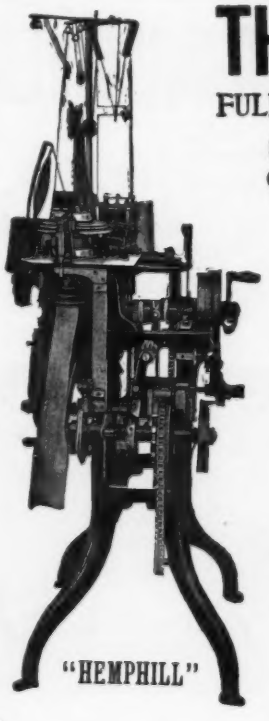
For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

The cut shows our **Improved Automatic Ribber** with **Welt and Slack Course** for Half Hose, Tops and Ribbed Legs.



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THE TWO LEADERS

FULLY AUTOMATIC HOSIERY KNITTERS

FOR MAKING ALL KINDS AND GAUGES OF SEAMLESS HOSIERY

One with **GEARS**, the other with **CHAIN** for pattern mechanism, to meet the various tastes of different manufacturers.

Both used and approved by leading hosiery manufacturers.

Both contain all the well-known essentials demanded of first-class knitting machines.

With these two machines we can supply all manufacturers' possible wants in the best possible manner.

Write us for further particulars and prices.

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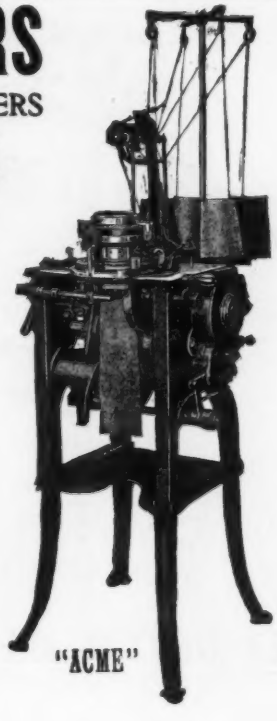

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EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

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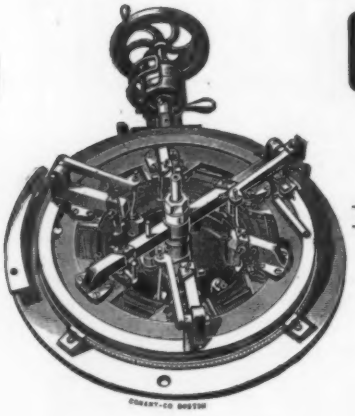
BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH



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Either plain or full automatic, with stop motions complete. 4 to 24 feeds for

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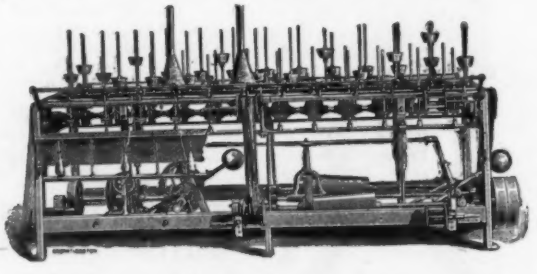
Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



ALSO BUILDERS OF THE WELL-KNOWN

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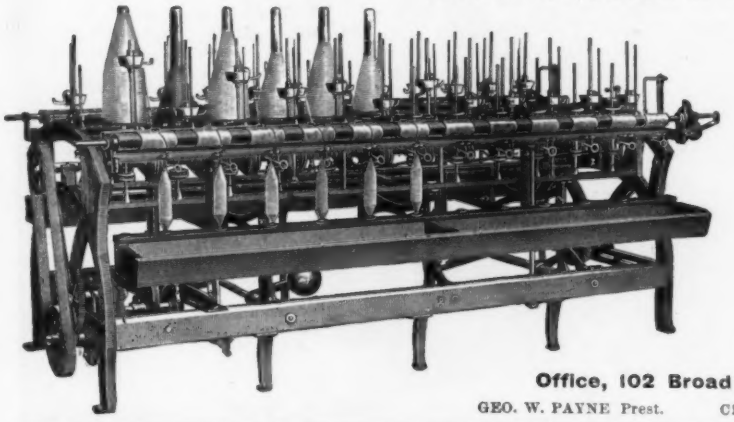
OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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For Ladies', Gents' and Children's Goods.
Latest Styles.
Best Workmanship.

Drying Form Boards

OF EVERY VARIETY.

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Large lot of Cotton, Woolen and Worsted Machinery of all kinds for sale. Best Prices paid for first-class second-hand machinery.

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Soft Clear Water.

We-Fu-Go and Scaife Water Softening Plants, and Scaife Water Filters can be seen in actual operation in Textile Plants in any part of the U. S. Apparatus designed to suit each special case, and we guarantee results. Write for Illustrated Catalogue.

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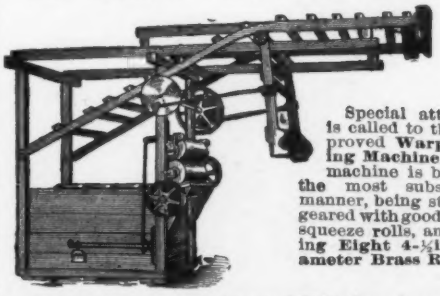
The Reliance Warp Dyeing Machine.



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So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time, Send for particulars.

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"OVERLOCK" MACHINE

(Trade Mark) (Pat. April 5, 1892)

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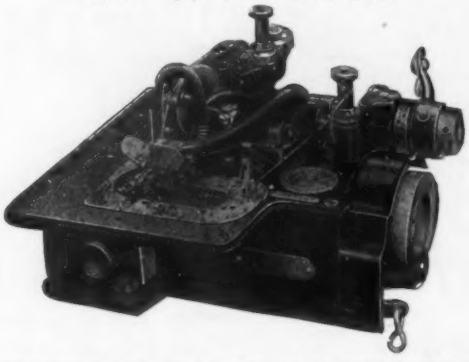

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Business Established in 1859.

For TRIMMING, SEAMING (or Hemming or Overedging) and COVERING Raw Edges of Knit Underwear and Hosiery in **ONE OPERATION** at **3000 Perfect Stitches per Minute.**

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Knowing what to do and Knowing how to do it is a short cut to success.

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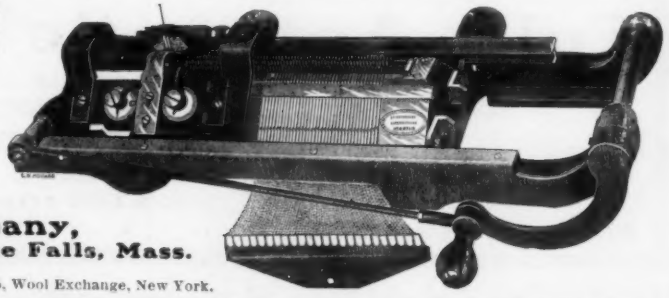
LEADER OF KNITTERS

Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.



Circular Machines, Rib Top and Seaming Machines.

Lamb Knitting Machine Company,

P. O. Box, 5888, **Chicopee Falls, Mass.**

J. E. WOODHEAD, 100 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

The CRAWFORD

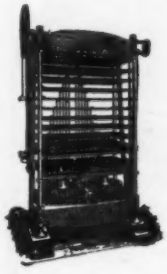


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PLATE PRESS

For Knit or Woolen Goods.

The most reliable machine of the kind on the market.

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Both single and double Stitch.

with the
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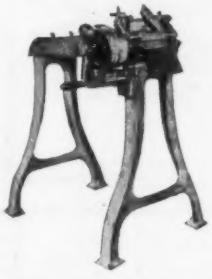

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Power Top Cutting Machine

Will cut anything with a Welt

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Showing equivalent sizes of different systems of numbering yarn; cotton, woolen, worsted, etc., so that the sizes of different standards may be quickly compared. Also contains a number of other valuable yarn tables for designers, manufacturers and knitters. PRICE 50c. Textile World Record, Boston.

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For Textile, Paper Mills, Etc.

Write for Catalogue. **WORCESTER, MASS.**

PAXTON & O'NEILL'S

Full Automatic Knitter

FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
RANGE ON HALF HOSE AND LADIES FROM 260 NEEDLES DOWN.

3-4 AUTOMATIC KNITTER

With Lace Effects.

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LOOPING MACHINE.

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Single and Double Stitch, or Both Combined.

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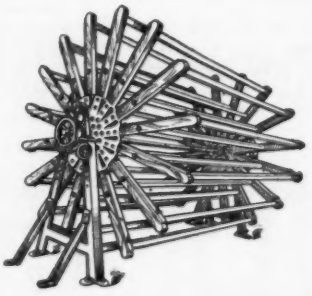

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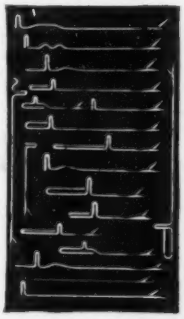

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Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders. **Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, etc.**

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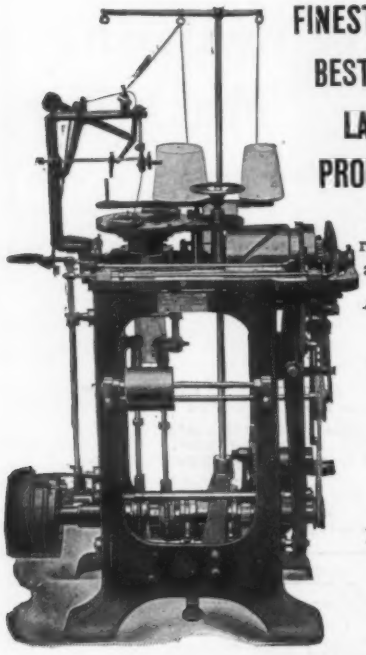

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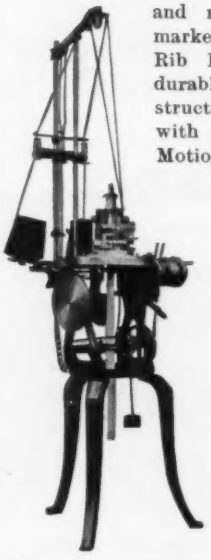

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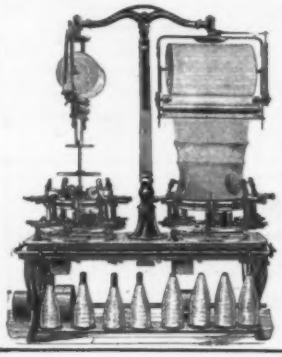

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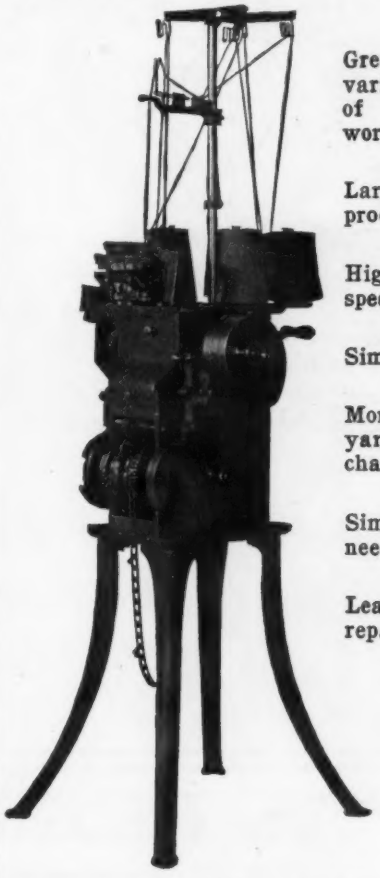
FULL AUTOMATIC MACHINE.

Specially adapted to Platted Goods.



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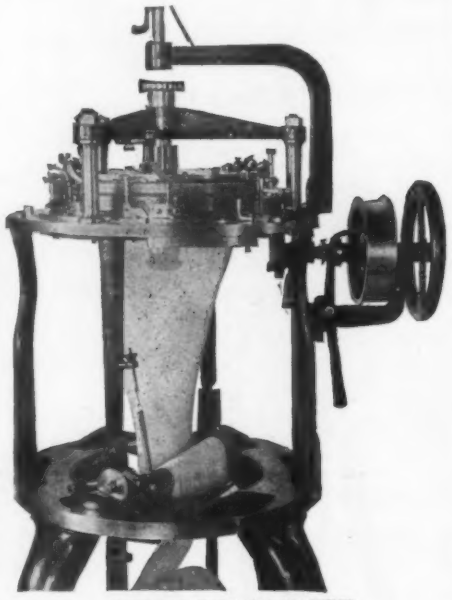

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Our Knit Fabric Cutter

will cut from the roll, knit fabric into any length from 10″ to 40″ at the rate of 100 pieces a minute. The lengths are accurate, the waste is a minimum, the labor unskilled.

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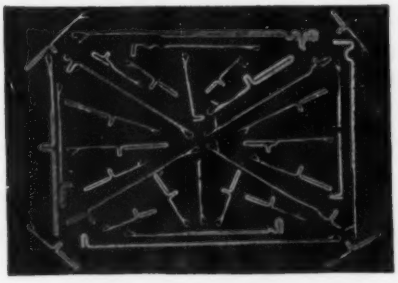

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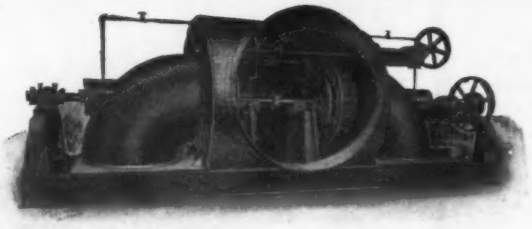

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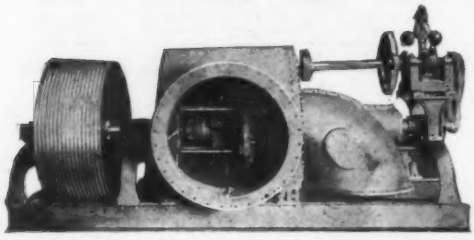

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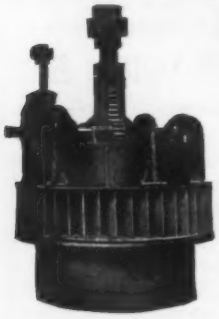

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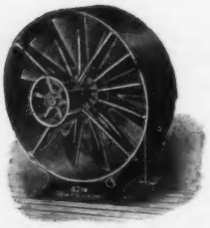
These Turbines are recognized as the most effective water wheels made. Your inquiries should come direct to us for this class of machinery.



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WE GUARANTEE RESULTS
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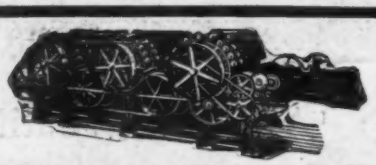

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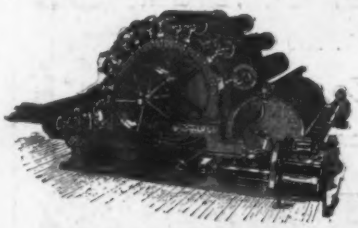

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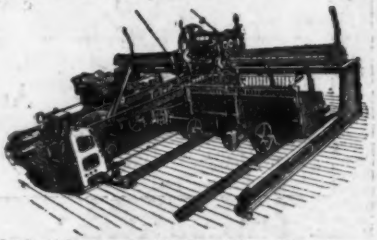

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Complete Equipment for Manufacturing Cotton Batting for All Purposes.

Special Carding and Spinning Machinery for manufacturing Yarn from such low grade stock as Mill Sweepings, Linters, Etc.

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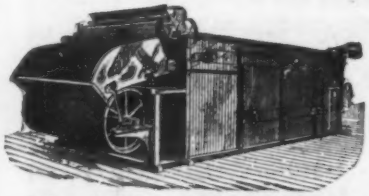
For Cotton Stock, Wool Stock, Rags, Yarn, Cloth Underwear, Stockings, etc.



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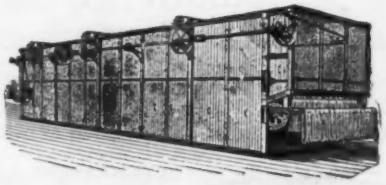

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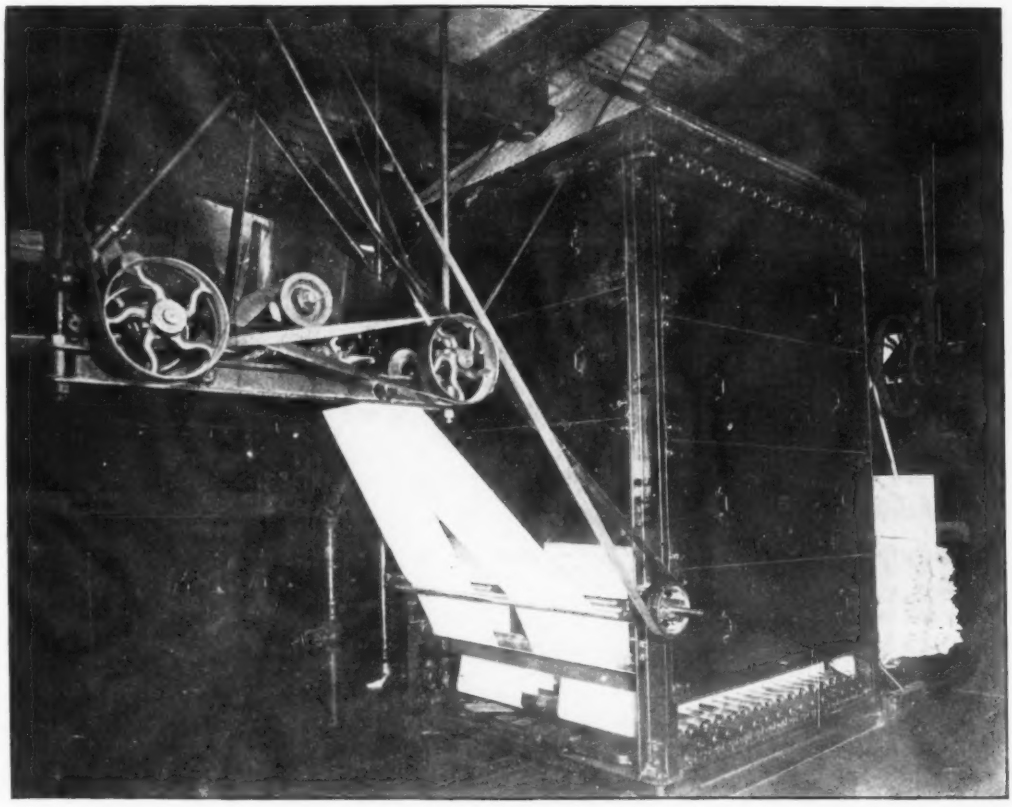

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